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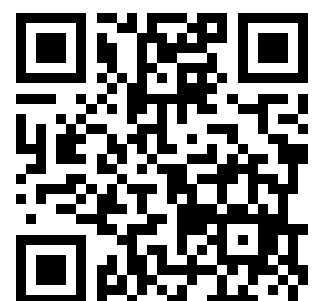


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AUG 3 1916

THE

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# THE ARCHITECT

AND

## Contract Reporter.

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OF

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CIVIL ENGINEERING,

AND

BUILDING.

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*Architectura est scientia pluribus disciplinis et variis eruditionibus ornata.*—VITRUVIUS.  
*Quand le bâtiment va, tout va.*—PROVERB.

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# THE ARCHITECT AND CONTRACT REPORTER.

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## FORTHCOMING EVENTS.

*Friday, July 7.*

Royal Sanitary Institute : Meeting in Manchester and visit to  
Manchester Co-operative Wholesale Society's Works,  
Crumpsall, at 2.30 P.M.

## TIMBER AND THE WAR.

THE present position of the supply and price of timber for building, with deals at £35 to £45 per standard, gives furiously to think. Are such inordinately high prices to obtain after the war? The causes of these present prices are sufficiently obvious. Despite the restriction of building, the demand for the material is enormous and imperative, and it must be obtained from somewhere, no matter what the price that has to be paid. Supplies, fortunately, are for the present sufficient; but the cost of freight is so tremendous that there is no likelihood of their being so plentiful as to exceed the demand to any such extent as to cause a radical lowering of price.

And, after the war, when the military demand ceases, the requirements of peace will also be urgent and intense. Not only will there be the leeway of deferred normal building construction to be made up, but the incalculable devastation which has been committed in the areas in which the war is being waged will necessitate the undertaking of building on a stupendous scale in the reinstatement of the devastated cities, towns, and homesteads which war has destroyed. Hence there will be a keen demand for timber both in this country and on the Continent.

The present price of timber, inflated as it is, is kept somewhat within bounds by the drastic manner in which our native woodlands are now being felled and denuded, particularly of their soft wood or coniferous trees. No one knows for certain when the war will end, but there is a great probability that the proclamation of peace will find our home-grown stock of marketable timber reduced to the smallest possible dimension; and should the war continue for another three years the probability may be regarded as a certainty.

We cannot hope, therefore, that our native supplies will, after the war, exercise more than a negligible in-

fluence in keeping down the price of timber; and it is desirable to consider whether there is any possible source of supply which can be utilised so as to reduce to reasonable figures the cost of building-timber. In an excellent paper by Mr. E. P. Stebbing, F.L.S., F.R.G.S., head of the department of forestry in Edinburgh University, read last spring at a meeting of the Royal Society of Arts, the suggestion is made that a properly organised exploitation of the almost untouched wealth of Russia in forests, some 1,363,000,000 acres, will provide us and our Allies with ample supplies at a reasonable figure until we can grow our own.

Forestry in Great Britain at the present time is exciting much interest and attention, which, we hope, will not be evanescent with the cessation of the present crisis; but its operations to-day are chiefly confined to the sacrificial cutting down of the 3,000,000 or so acres of woodlands in the United Kingdom, which have not, for the most part, in recent years been worked upon commercial principles, but have been kept up either for shelter or sport and, to a lesser extent, for ornament.

If the whole of the woodlands which are now, under the stress of war and high prices, being denuded of their sizable timber were immediately replanted, as they should be, it would be a matter of some thirty to forty years before we should be able to obtain even pit-props and pulp from them, and about twice that time before they would be fit to supply decent building-timber.

We need not, however, dismiss the afforestation of our country as a concern of no importance because it will not satisfy our more immediate necessities. Britain, once covered with forests, is now one of the most poorly wooded countries in the world, the area of woodlands within the United Kingdom being less than 4 per cent. of the total land area. Had our grandfathers sixty to seventy years ago planted up a proportion of the waste lands of these islands we should have been saved a large sum of money and a great deal of anxiety during the past year and a half. Had our fathers planted thirty to forty years ago, the pit-wood required for the mines would have been available in this country, and the great trouble to which mine-owners are put and the ruinous prices they are paying for their timber and we are all paying for our coal would not have existed. Paper pulp from areas of spruce woods, which many parts of our lands can grow to perfection, would also be available, and the Press would not be faced with the position in which the action of a neutral and a scarcity of tonnage have now placed them.

Nor is the duty we of the present day owe to the prosperity of the country in the course of a generation or two by any means the most potent argument that can be adduced for a thorough revival of silviculture in this country. In a series of articles in the "Times," Sir John Stirling Maxwell clearly shows that in a well-organised and widely extended application of forestry, on commercial lines, there is to be found a source of future wealth which the credit of the State will enable us to

discount for the advantage of the present generation as a means of livelihood.

The wealth of the country can be largely increased, Sir John Maxwell points out, as others have done before him, by exploiting as timber-growing areas the waste lands at present bringing in from 1d. to 6d. an acre. Sir John would go further and grow timber instead of sheep on land up to an annual rental of half a crown an acre. According to his calculations, the yield of such land from timber would, even at pre-war prices, be about treble of that from mutton and wool.

The benefit to the present generation which would result from extended afforestation of suitable land would lie in the opportunity it would afford, for what there is now a general consensus of opinion is highly desirable, if not imperative, a fuller working occupation of the country-side. As sheep grazings and deer forests, land on the average does not require the services, says Sir John Maxwell, of more than one man to a thousand acres.

By a more intensive occupation as small-holdings and forests, which are reciprocally advantageous, especially in moorland country, the conditions are transformed. A woodman is required for every hundred acres of forest. He will have his house, his small-holding, and his wages. Carters and saw-millers are required. They will have their houses and small-holdings, and the certainty of well-paid work in winter, when they would otherwise be idle. This is the A B C of forest economy. It means that a tract of 10,000 acres, which under sheep or deer supports ten or twelve families (or divided into smaller holdings might possibly keep fifteen or twenty) can, if the bulk be planted, afford direct support to over a hundred families, while forest industries, such as pulp, paper, or furniture, may double the number.

A further advantage to the national wealth is that afforestation has undoubtedly beneficial effects, not only upon the climate, but on the soil of the waste lands. Recognition of this fact is seen in the action of some of our great cities in respect of their water-sheds. Liverpool has led the way by afforesting a large area on Lake Vyrnwy, in North Wales. Manchester has been afforesting her catchment areas at Thirlmere, &c., during the past twenty years out of funds provided by the Corporation. Birmingham has a magnificent unplanted area in Central Wales, which it has been for some time considering the question of afforesting. Leeds is also contemplating the advisability of the advantage to be gained by afforesting the land of this nature it possesses.

Great municipal corporations do not, however, own or control more than a small proportion of the possible forest country, and it is on the State that the obligation rests of rendering feasible the afforestation of the bulk of our waste or poorly remunerative land. To leave it to private enterprise is to ensure a repetition of the apathy which has resulted in our present humiliation and costly reliance upon supplies from overseas. Afforestation will pay by increase of the national wealth in what after all is its ultimate source, the full exploitation of the land. It will furnish a healthy livelihood and congenial occupation to the thousands of demobilised fighting men whose experiences of outdoor life will make them disinclined for the irksome environment of work in our towns, it will bring to full activity and usefulness thousands of acres of depopulated country-side.

#### NOTES AND COMMENTS.

THE value of motor traction has been so abundantly proved by the experience of all the participants in the present war, that it is clearly evident that when peace returns more roads, particularly trunk roads, and better roads, will be urgently required, and the more immediate the construction of new trunk or arterial roads the better. Therefore there is a great deal to be said in favour of a

suggestion in the "Liverpool Courier" that German prisoners in this country should be employed in road-making. The particular highway urged by our contemporary is a new trunk road between Liverpool and the Lancashire industrial area, but the source of labour remains applicable to many other arterial roads. Nor can it be urged that our soldiers are wanted abroad to give further weight to the "big push," and so we cannot spare them for guards to the prisoners. There are between one and two hundred thousand trained volunteers in this country who can handle a rifle and bayonet, and would gladly see the recently granted recognition of their force supplemented by a request for guards.

Great roads are as sensible a form of memorial as any other, and therefore there is interest in the proposal from across the Atlantic to make an international highway on the line between Canada and the United States, this highway to be called Peace Highway, in commemoration of the 100 years of peace between the two countries. It is proposed to have inscribed on the monuments along the border, which will be in the centre of the contemplated highway, the fact that for 100 years peace has reigned along this border. The Whatcom County Commissioners have taken the initiative in the matter, and have outlined a highway from the salt waters of Blaine and White Rock to the mountains near Sumas and Huntingdon, as the first part of what it is hoped will be a paved highway from the Atlantic to the Pacific along the boundary and connected with the Pacific Highway from Blaine to California, and the inter-provincial highway from Vancouver to Chilliwack. The part of the road which it is proposed to make as the first unit is along twenty-five miles of practically an even grade, but as neither the State of Washington nor the municipalities of British Columbia bordering on this highway can finance the project, it is proposed to have the matter brought before the American Congress at Washington and the House of Commons at Ottawa.

On the American side the matter is now in shape to put before Congress, while on the Canadian side the proposition will be laid before Colonel Taylor, M.P., by the Matsqui and Langley Councils, the Good Roads Association, and various other public bodies. Mr. John G. Howes, president of the Good Roads Association, will bring it before that organisation.

It is stated by the advocates of the scheme that, apart from the moral effect, the practical benefit derived by the settlers on both sides of the line in the districts adjacent to the proposed highway will pay ten-fold for the money expended. Should Ottawa and Washington agree to construct this highway in co-operation with the State of Washington and the Province of British Columbia, it is proposed to continue the highway gradually until a paved thoroughfare extends from the Pacific to the Atlantic.

The Lord Provost of Aberdeen has returned from London with polite assurances of "favourable consideration" but small hope of a compliance with the request of foreign granite importers in Aberdeen that they may be given permission to carry on their unpatriotic business during the war. Of course the said importers make a great point of the poor old men who will be deprived of their livelihood if foreign granite is not imported. Great is Diana of the Ephesians! But the Board of Trade must have in their mind the effect upon the nationals of an ally not of a neutral by the prohibition of the importation of Carrara marble, and may be trusted to decide rightly as to whether we want in this country during war-time Norwegian granite and Italian marble instead of meat and wheat. There is not enough tonnage to spare for all four commodities.

The Town Planning Committee of the Birmingham Corporation report that a scheme for the planning of North Yardley has been prepared, and is under considera-

tion in conference with the Meriden Council and the officials of the Local Government Board. In this connection it is necessary that some modification of the proposed roads in the adjoining town-planned area of East Birmingham should be effected, and to enable this to be done it is incumbent upon the Corporation to prepare an amending scheme in respect of the portion of the East Birmingham area affected by the proposed road modifications. The Corporation is the owner of the land principally affected, and at the most only about half a dozen owners in the East Birmingham area are directly concerned. In one case an agreement has been arrived at, and no difficulty is anticipated with the remaining owners. So far as the landowners in North Yardley are concerned, the modifications are to some extent being made to meet views expressed by owners and others interested in that area. The committee recommend that the Council should authorise the giving of notice of their intention to make an amending scheme in respect of about 247 acres of land included in the East Birmingham town-planned area, and should instruct them to prepare a scheme, issue such notices, and make such applications to the Local Government Board as may be necessary in the matter. The draft scheme will be submitted for consideration as early as practicable.

Almost on a par with the public spirit of the United States, considering the relative areas of the two communities, is the acquisition of Loch Lomond Park by the Glasgow Corporation, which marks an important development in civic enterprise. The idea of a Scottish national park had long been entertained in a nebulous sort of way, but opportunity for municipal action did not present itself until, by a combination of circumstances, the desirability of acquiring for public use the park on the shores of Loch Lomond forced itself on public attention. The authorities of Dumbartonshire had made frequent efforts to obtain free access to the southern shores of the loch, and the industrial growth of Glasgow on its western borders resulted in the shores of Loch Lomond becoming increasingly a rendezvous of the masses. The popular demand to enjoy the beauties of what is admittedly one of the grandest panoramas of Scottish scenery led to litigation, which it is unnecessary to refer to in detail. Ultimately a suggestion was made to the Glasgow Corporation to acquire interest in the park by payment of a certain sum, the remainder of the purchase price to be raised by public subscription. The Corporation, however, at a meeting on July 9, 1914, resolved to purchase the estate entire at a cost of £30,000. Apart from the communal benefits conferred on the huge population in Glasgow and on its fringes, the purchase of the Loch Lomond Park promises to prove a profitable municipal enterprise. The estate extends to over 800 acres, of which 240 acres, with a frontage of over a mile on the River Leven and Loch Lomond, embrace the policies and picturesque old castle of Balloch. On the other part of the estate are four farms, of which the Corporation is now landlord, and a large portion of ground suitable for feuing. Corporation enterprise has provided free access to the southern slopes of the loch, thus satisfying a long clamant public demand. Balloch estate is historic ground. It was here that the Earls of Lennox, prior to the fatal blow inflicted on them by James I., maintained exalted rank. On the division of the Earldom the stronghold of Balloch was retained in the hands of the Darnley branch, and within its walls royalty was occasionally entertained. No portion of the ancient castle of Balloch remains, but a fosse still exists encircling the knoll on which the castle stood. The present mansion, now civic property, was erected by John Buchanan of Ardoch. It is a beautiful edifice, situated at an elevation of from 200 to 300 feet. From this and other heights on the estate magnificent views are commanded, and there is also an abundance of picturesque walks. It may be legitimately claimed that Loch Lomond Park is one of the most beautiful places of recreation possessed by any community.

At a largely attended meeting held in Liverpool of the National Federation of Property Owners and Rate-payers, the President, Mr. M. Cheverton-Brown, of Hull, in his opening address spoke encouraging words as to the position of property owners after the war. He was confident that the value of land and houses would be enormously enhanced. Owing to adverse legislation values to-day were fictitiously low, but never again in our time would houses be built at the prices for which the present owners purchased them. At present property owners were unjustly debarred by law from getting the fair return which past losses and lean years would justify, but this position could not, and would not, continue indefinitely. Private enterprise, which had provided 95 per cent. of the housing of this country, would always be able to provide houses at less cost than municipalities or public bodies, but private enterprise must be encouraged by legislation, instead of being taxed and hampered. There were signs that this encouragement was coming.

Mr. Brown, alluding to the changed conditions of trade and business after the war, made reference to the lesson so forcibly impressed upon trade unionists by our present activity if they will only learn it. The output per worker in this country, he pointed out, was only one-third to one-half as much as it was in the United States. We produce 244 tons per coal miner per year, Canada produces 472 tons, Australia 542 tons, and the United States 660 tons. Approximately, the same ratio of output applies to nearly every other of our productions and manufactures. "No policy that was ever evolved has been so detrimental to us as a nation," the president added, "as that of 'restricted output.' It must cease, and, if necessary, be made illegal." He saw no reason why work should not be found for all, or why, with renewed energy and enterprise, wages should not even increase. A general high wage was synonymous with national prosperity.

To provide for a high ideal of hygienic conditions in housing, which is the natural goal of all sanitarians, Mr. Peter Fyfe, chief sanitary inspector of Glasgow, at the annual meeting and congress of the Sanitary Inspectors' Association of Scotland, advocated building with concrete blocks. In the exposition of his ideal he urged larger cubical air space in working-class dwellings. Ten persons to 12,000 cubic feet, he said, was supposed to be a defect in ventilation in a factory. Houses where people live and sleep ought surely to be at least as sweet as a factory. He maintained also that four-storey tenements ought to be forbidden. There should be no more than three storeys. He was aware that what he recommended had a tendency to increase rents, and they knew from experience that rents were already as high as those people could pay. Something, however, must be done. Not only must they give at least a 9-foot ceiling, but each family, he contended, should have the use of a bath, a water-closet, and a little larder, where they could keep fish, soup, &c. Where were they to find the money? That was the problem. In this connection he argued in favour of concrete buildings.

An interesting series of trials with the fire-extinguishing appliances belonging to the Corporation of Lincoln has been made with a view to ascertaining the efficiency of the city apparatus if required to work on a fire at the Cathedral in case of the Cathedral's own apparatus being rendered useless by the electric power, which drives it from the city cables, being withdrawn. It is of great value to know that the experiments, which were severe, were entirely successful. They were watched throughout with the most careful attention by the Dean, on behalf of the Cathedral authority.

The No. 2 motor engine, which was acquired a year last February, and is built by Messrs. Dennis, was employed, and the first trial was an assumption of fire on the summit of the Broad Tower, which has a height of

300 feet to the ball below the weather vane on each pinnacle. The problem set was to obtain pressure through the  $2\frac{3}{4}$ -inch hose on the level and then by the 3-inch rising main that runs up the top of the tower—the reverse of the usual order of going from a large diameter to a smaller. With a  $\frac{1}{2}$ -inch nozzle affixed at the top a force was developed which lifted a jet well above the height of the pinnacle—probably as high again as the pinnacle itself stands above the tower—and the alteration to a  $\frac{3}{4}$ -inch jet and a  $\frac{1}{2}$ -inch jet proved even more successful.

The next trial was to lift a jet from the ground direct over the ridge of the nave roof, a height of 120 feet. The branch fixed to the hose had a nozzle diameter of 1 inch, and though on rising to the level of the ridge a stiff wind was encountered, it rose clear above the ridge and sprayed over on the north side. A  $\frac{1}{2}$ -inch jet was also successful.

The engine was now moved to a point further westward, still on the south side, but between the western towers and the Broad Tower. Here came in another stiff proposition. The  $2\frac{3}{4}$ -inch hose from the engine was attached, at the base of the walls, to the 4-inch rising main, which at the triforium becomes a 3-inch main. The object was to lift, with the firemen on the nave roof, at a height of about 84 feet, a jet to the height of the Broad Tower, a rise of about 190 feet further. For this, one of the Cathedral apparatus nozzles,  $\frac{5}{8}$ -inch, was brought into play, and a gradual development up to 250-lb. pressure enabled a spray of water to be flung to the level of the open stonework. The top of the stonework was reached with this pressure.

The final experiment, with the men on the top of the west front, 100 feet from the ground, enabled a jet of water to be passed over the Exchequer Arch, again using the Cathedral  $\frac{5}{8}$ -inch nozzle.

In an instructive lecture on "The Heraldry of the Abbey," delivered recently, the Vicar of Selby (the Rev. Dr. J. Solloway) said that in the Abbey there was formerly a very great amount of stained glass, with heraldry upon it. Evidence of this was found in a great trial which took place in the years 1385 to 1390, a big heraldic lawsuit, and during the lawsuit, which related to the Scrope arms, the then Abbot of Selby produced an illuminated volume containing, it is said, a tremendous number of coats of arms, with the names of the persons represented by the arms underneath. After the dissolution of the Monastery, the Abbey Church became neglected, because a great deal of the money was taken away, and people were not there to look after it as they should have done. By the year 1800 he believed there were about sixty or sixty-five coats of arms in stained glass left in the Abbey Church, but only about twenty-two were left at the present time. The beginning of the nineteenth century was a terrible time for the church, and many things were destroyed that should not have been. In the middle of that century there came a great craze for modern stained glass; and he was sorry to say that when they took out windows to replace them with modern ones the ancient glass disappeared. The coats of arms in the Abbey were probably placed in the windows to represent various benefactors. In the olden days the practice obtaining nowadays of putting up stones and inscriptions was not followed. The Abbey must have cost, in modern money, a quarter of a million, but there was not to be found from one end of the church to the other a record of any of the benefactors. The corbels over the choir to the left—very beautiful, and so far as he knew unique—represented a bundle of faggots tied up, one at each end. He should not be at all surprised to find some day that the two bundles represented the benefactor, the one probably who gave the timber for the choir roof, and his wife. Some of the heraldry in the Abbey had been restored during the past twelve months, the D'Arcy monument, the Crusader effigy, and another of a lady, and on these effigies were to be found interesting armorial bearings.

## ILLUSTRATIONS.

### DUICAL PALACE, MANTUA.

THE parts of the Ducal Palace, at Mantua, which we illustrate this week will be found described in the article by Professor Alfredo Melani on "The Principal Home of the Renaissance." Further illustrations from Mantua we shall give next week.

### MANTUA: THE PRINCIPAL HOME OF THE RENAISSANCE.

By Professor ALFREDO MELANI.

#### (1) *The City of Silence.*

No one who has not visited the Ducal Palace at Mantua and considered its ancient magnificence can claim to know Italian Renaissance, or, at least, to know all the gems of the artistic crown which adorns fifteenth- and sixteenth-century Italy. This palace is generally called the "Reggia," though, strictly speaking, the Reggia comprises a number of buildings, gardens, and courtyards, including the church and theatre, all of which are of different styles, dominated by the Renaissance of Andrea Mantegna and Giulio Peppi, known as Romano.

It is impossible to visit the palace without being reminded of the Vatican; indeed, the Ducal Palace of Mantua may well be called the Vatican of that silent city, since Mantua, like other minor Italian cities which rose to the height of their fame at the Renaissance, such as Ferrara, Urbino, Perugia, Pienza, is to-day almost forgotten with its past glory.

Certainly no comparison can be made between the Mantua of the Gonzaga and the same city under the government of the Italian monarchy which, if it could be said to take an artistic interest in Mantua, limited this interest to voting sums of money for the preservation and restoration of the local monuments—sums which were always inadequate for the needs of the artistic patrimony of Mantua.

#### (2) *Ancient Methods and Historical Data.*

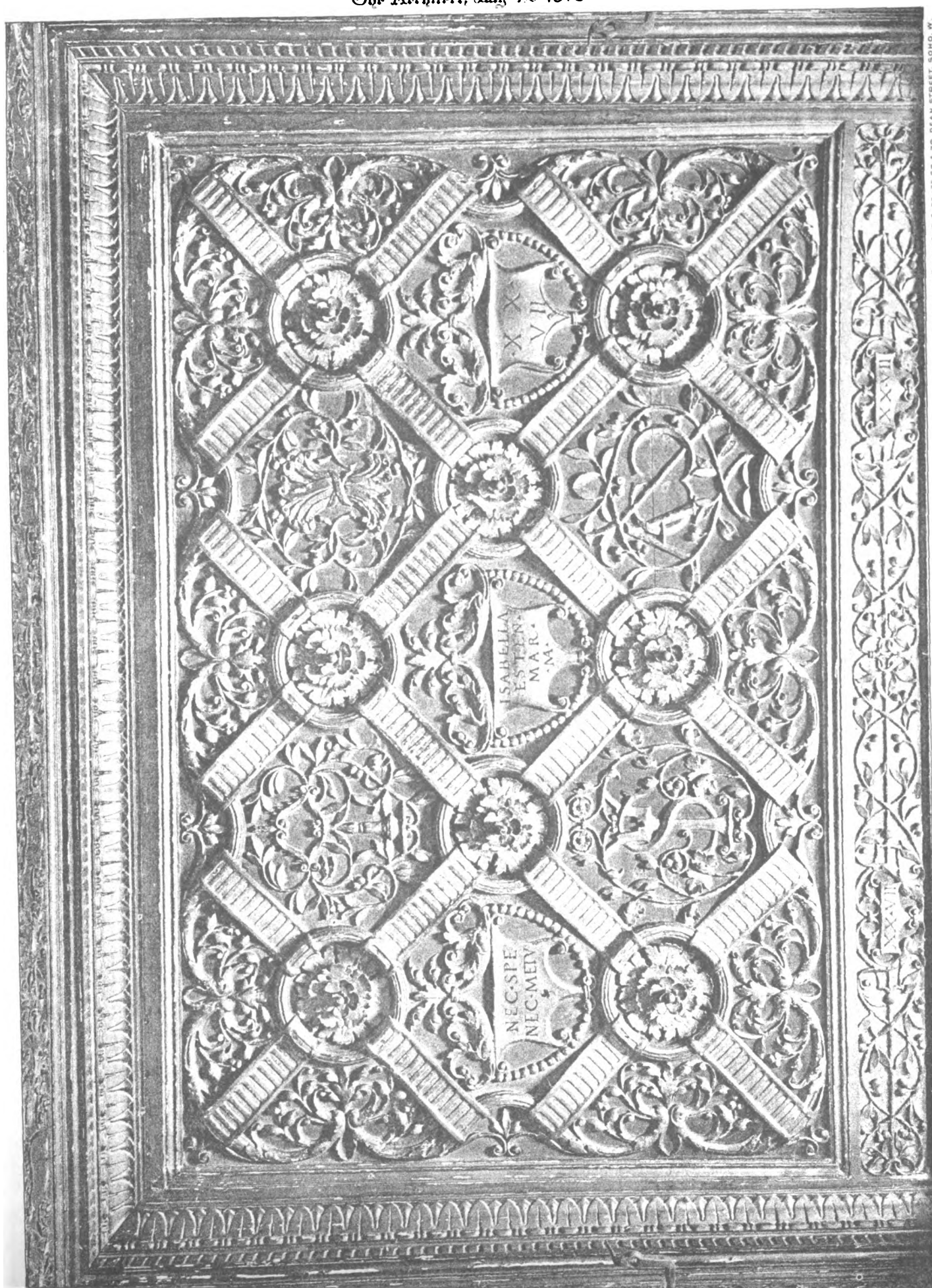
I have just mentioned the Gonzaga. The Marchesi di Gonzaga were the rulers of the city for nearly four centuries from 1328, in which year they expelled the Bonacolsi, a celebrated Mantovian family, the most powerful member of which was Finamonte Bonacolsi, who, having obtained for himself the title of Captain-General of the People in 1276, started the "Bonacolsian" dynasty, which ruled Mantua before the Marchesi di Gonzaga, who were also captains and dukes.

The origin of the Reggia is thus to be attributed to the Bonacolsi, to Guido (1302) to be precise, with the exception of the castle, which was built by order of Francesco Gonzaga in 1395, when the latter was Captain of the People. Passing on now to the fifteenth and sixteenth centuries and those succeeding them, we come to the "Grotto" and "Paradise" apartments, which reveal the taste of an eminent lady, the Marchesana Isabella d'Este (1490-1539); to the Trojan apartments, to those of the Mostra, to the Cavallerizza and stables, built by order of Duke Frederick I. (1519-40); to the "Stivali" apartment and to the Basilica of St. Barbara, the latter designed by the architect Giambattista Bertani, the pupil of Giulio. We next come to the Ducal apartments built under Vincent I. in 1598; to the Arcovia and Guastalla apartments, rebuilt under the last of the Gonzaga; to the Green apartment, or that of the Emperor and Empress, in memory of Maria Theresa and Joseph II. of Austria; and, lastly, I may mention the new theatre, built in 1783. Such are briefly the chief components of the Mantovian Reggia, which once gave employment to a host of artists, even noteworthy ones, including Andrea Mantegna and Giulio Romano.

Indeed, a visit to the Ducal Palace alone reveals—or, rather, revealed—the work of Costa, Francia, Perugino,





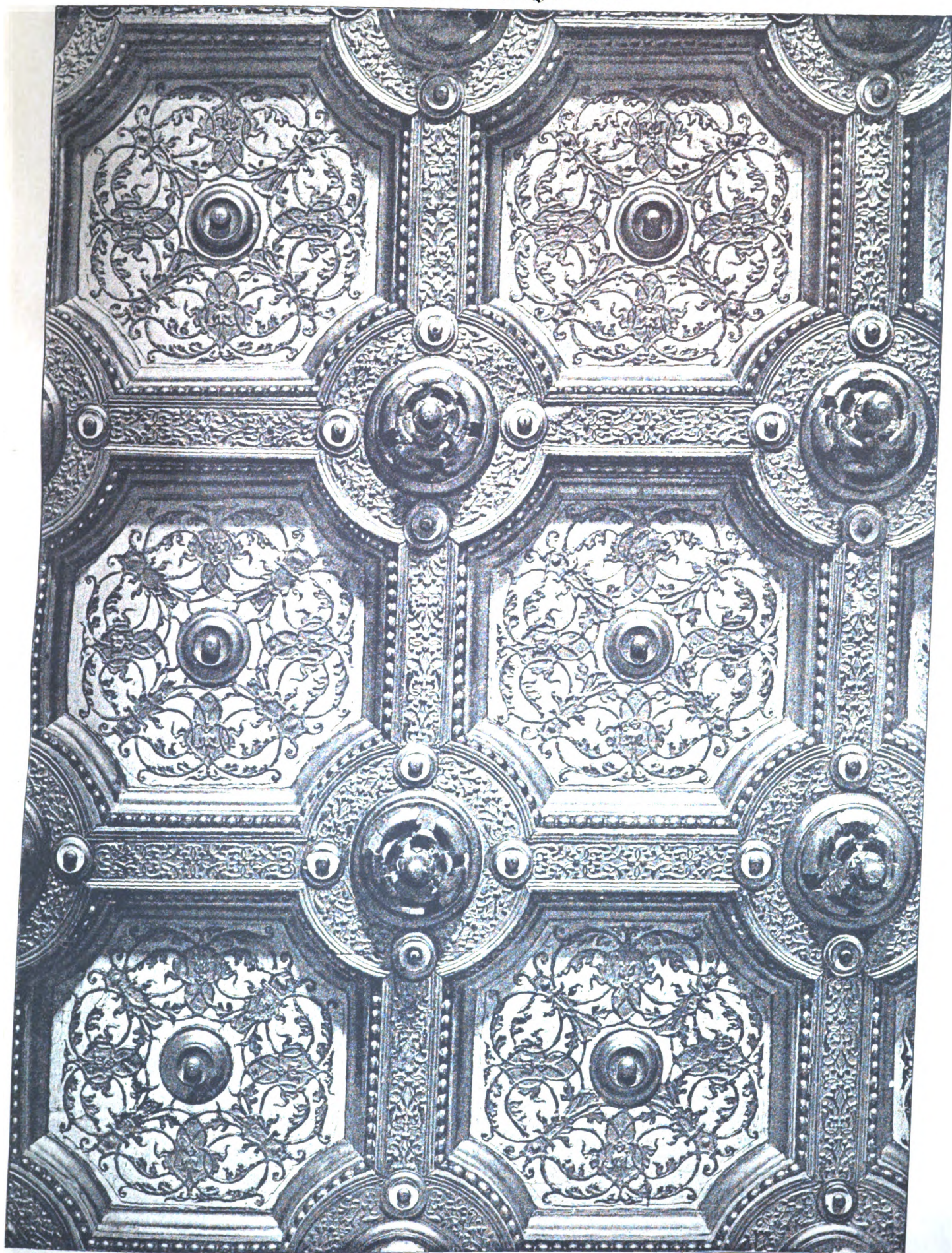


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DUCAL PALACE, MANTUA. DETAIL OF A CEILING IN THE "PARADISE" APARTMENT (15th Century).





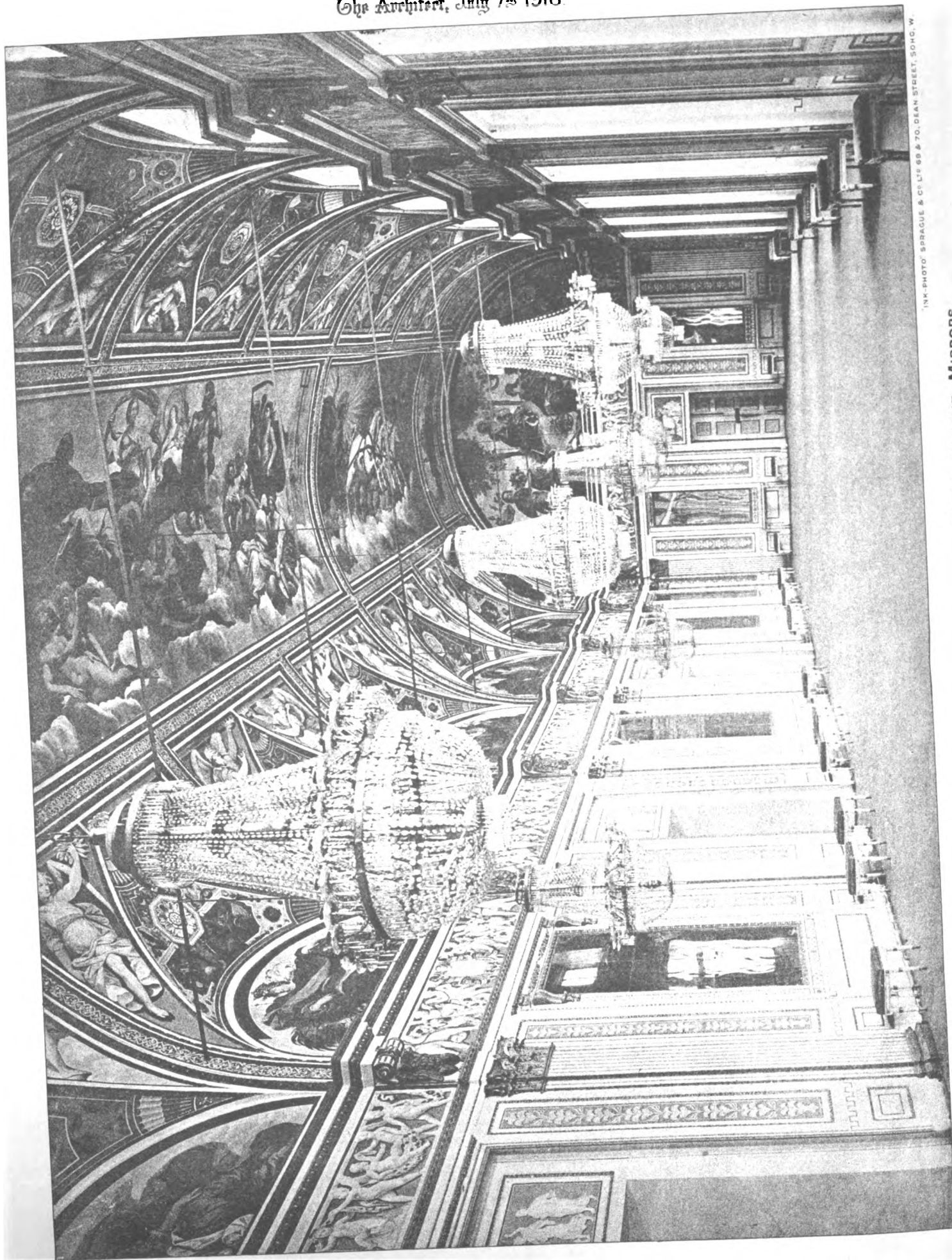
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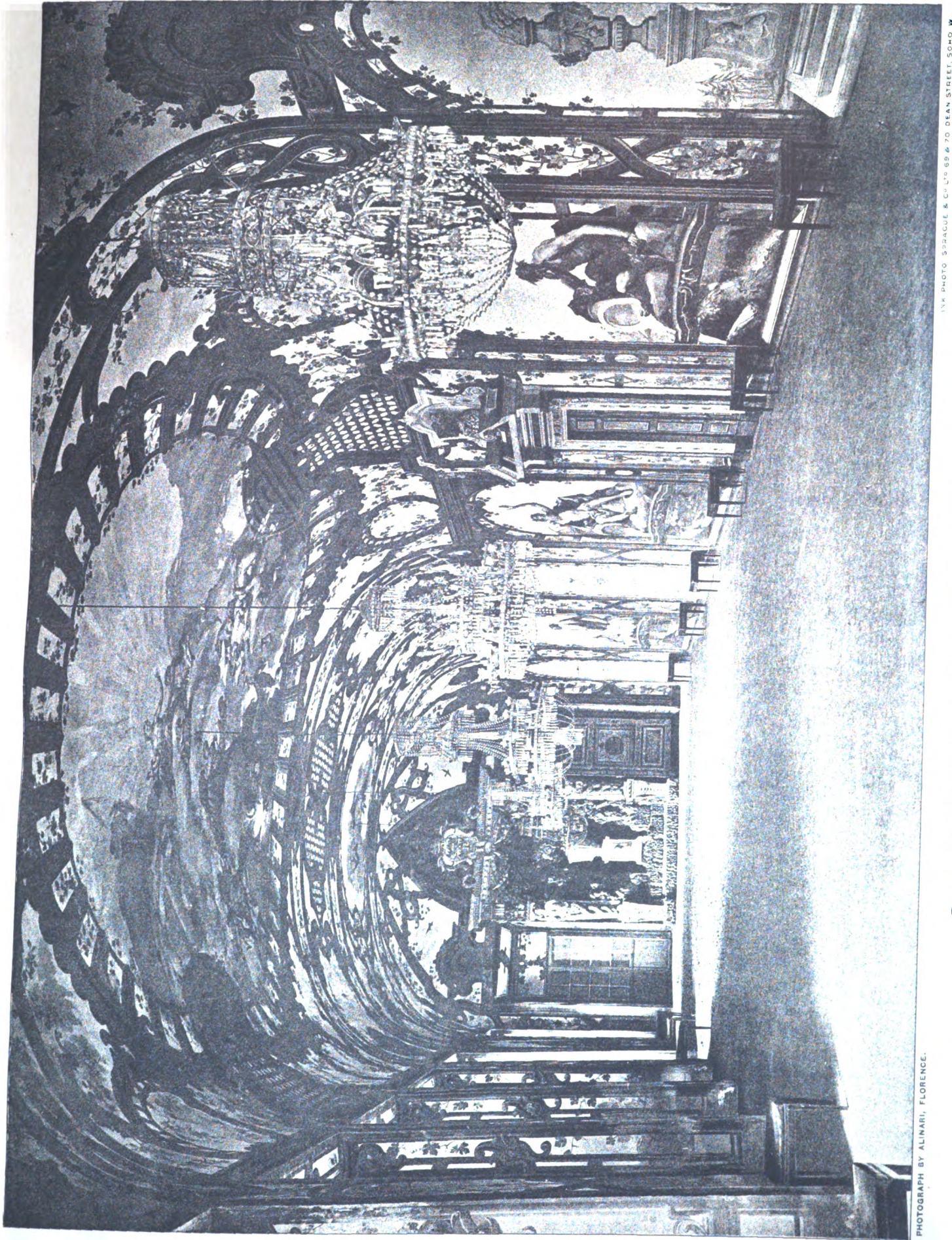


DUCAL PALACE, MANTUA. NEW GALLERY OR SALON OF THE MIRRORS.

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DUCAL PALACE, MANTUA. SALON OF THE RIVERS OR REFECTORY.

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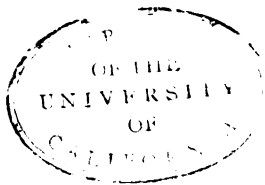


REBUILDING OF PREMISES, CORNER OF OXFORD ST. AND WATERLOO ST. SWANSEA.  
FOR WILLIAM EDWARDS, ESQ.  
CHARLES T. RUTHER,  
ARCHT. SWANSEA.

Nov. 1912

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Correggio, Sansovino, Alfonso Cittadella, Giancristoforo Romano, Primaticcio, Leonbruno, Palma, Tintoretto, Guercino, in addition to that of Giambellino, Leonardo, and Michelangelo, and not forgetting that of Bibbiena (Ferd.), Anselmi, Mantovani, Ghisoni, and others in the apartments, halls, and atriums. There were architects, sculptors, painters, decorators, such as Primaticcio, who bequeathed superbly beautiful examples of his art in stucco to Mantua before leaving for France. I said that all this was to be found in the Ducal Palace advisedly, because at the present day its condition is lamentable. Vaults and walls are crumbling, the paintings effaced, the stucco and statues broken, the architecture ruinous, the furniture destroyed; in fact, everything is crying out for attention and reparation. The truth is that this magnificent home of art was surrounded by brutality, ignorance, and indifference; only quite recently did respect take the place of neglect. But too late! The damage done, the mishandling, is too great for faith and money to restore to the Ducal Palace its original splendour. Certain pictures are no longer restorable. England would not give up to Italy Mantegna's greatly admired "Triumph of Cæsar" at Hampton Court, once an ornament to the Ducal Palace and to the Palazzo del Te, which is artistically one with the Ducal Palace, though situated at some considerable distance from this latter.\* Neither would England cede Titian's "Emperors," and Germany would not willingly restore the Tintoretto masterpieces to be found at Monaco, nor France Perugino's "Struggle of Love and Chastity," which is possessed by the Louvre. These are only a few of the many treasures for ever lost to Mantua which formerly added to the beauty of the Reggia.

It is interesting to note that every apartment and nearly every hall has a special name, having a local or fortuitous connection with it. The Paradise, the Grotto, the "Stivali," the Mostra, the Guastalla, the Trojan apartments, the Green apartment and that of the Emperor and Empress, the latter referring to the French dominion and the vice-regency of Alexander, Viscount Beauharnais. And there is also the chamber of the "Sposi," the hall of Manto, that of the Captains, the Adventurers, the Archers, the Marquises, the Virtues, the Eleven Emperors, the Zodiac, the Popes, the Moors, the Sea-shells (conchiglie), the Rivers, the Mirrors, without mentioning the names of the atriums, marbles, busts, &c.

The vastness of the subject only permits us to notice a few apartments and halls.

### (3) Description and Criticism.

The façade of the Ducal Palace is Gothic, with a portico and for the most part pointed windows, though there are a few rectangular ones. It lacks the ornamental stonework which usually adorns French and English Gothic. It looks on to the large Piazza Sordello, having on its right the Palatine Basilica of St. Barbara, destined almost exclusively for the use of the present Royal Family. Taste changing with time, a despicable monument was placed in the piazza to commemorate a heroic page in our historical revival; this monument was rendered even more despicable by the presence of the Reggia and Ducal Palace.

Those who are curious to know the ancient aspect of the Piazza Sordello should study Domenico Morone's picture, "The Pursuit of the Bonacolsi": the piazza is animated, pedestrians and horsemen are passing to and fro, the brightly hued costumes fascinate the artist, and artists and historians alike are struck with the picturesque background upon which the Ducal Palace stands out prominently. This picture used to be in the Crespi Gallery at Milan, and miraculously escaped the general dispersal which followed when this gallery recently came

to grief. The collection was a noteworthy one, but brought financial disaster to its possessor, a business man, and was sold by auction for a much smaller sum than it was thought likely to fetch.\*

Since the buildings are many and varied, the architect stops with profit at various points. I was anxious to reproduce the Cavallerizza (see illustrations), the fifteenth-century creation of Giulio Romano, who was both painter and architect at Mantua, an inventive designer of tapestries, head of a school of artists and architects at Rome, and a pupil of Raphael, whose influence is seen in the Vatican Loggie, which have been foolishly attributed to the master, when they are evidently the work of his pupils.

The Cavallerizza is situated near a lake, and though not a work of the highest type, yet the lines of its design are strong, and with its twisted, patiently carved columns show high artistic feeling, but rare in the fifteenth century. And we see again with the mind's eye the jousts, tournaments, equestrian games which took place here formerly, for we know that the ruling family was very fond of horses, and often invited Ministers of State, ambassadors, poets, and artists, to witness these games.

To-day, however, all this has changed to squalor; no more do the lake and Cavallerizza display their beauty to the pleasure-loving followers of one of the most splendid dynasties of the Renaissance.

The Cavallerizza, designed by Giulio Romano, and hired to private individuals during its years of neglect, starts at a short distance from the "Stivali" apartment, which is approached from the Marble Atrium. The name "Stivali" (boots) would sound strange in Italian, were it not for the fact that it is a corruption of the French words "Maison estivale," summer house; by which name that part of the Palace was designated which is otherwise known as "la Rustica," it being near the lake and gardens.

To-day the sight has, unfortunately, but a faint resemblance to its past glory; it is the same with the apartments, whose fixed and movable paintings should charm the eye, and whose furniture should vie with the most magnificent examples known.

There is one of these apartments, the beauty of which causes it to be numbered amongst the finest specimens of national genius—I refer to the Paradise apartment, so-called because its windows and pavilions look on to the gardens and lake with the sloping valley of the Po in the distance. A heavenly scene! But it cannot be denied that this name is equally applicable to the apartment on account of its beauty, which is so wonderful and unexpected as to resemble Paradise. At all events, the apartment was carried out at the wish of Isabella d'Este (1490-1539), who caused it to be decorated so tastefully that even to this day its splendours delight us. But it is not right that so little should remain—only four small rooms—to bear the arduous task of depicting the former graces of the old apartment. One has even been confused by Carlo Yriarte with a "studiolo" near the Grotto, thus misleading the authorities of the Kensington Museum and causing them to assign the pictures destined for the "studiolo" to the Paradise cabinet, which is reproduced in relief in this museum.

Pictures, furniture, bronzes have all disappeared; in vain do we search the walls for the works of art which once decorated them. The sculptured ceilings are still preserved, and—what is even more important—a door remains, attributed to various masters, amongst others to Giancristoforo Romano, the counsellor and friend of Isabella d'Este, and to Andrea Sansovino, but which is really the work of Tullio Lombardo (earlier than the sixteenth century). The simple composition, well-balanced and full of charm, though not a great proof of genius, forms a good introduction to the beauty and elegance of the Paradise apartment, which was inhabited

\* The picture at Hampton Court is deeply impressive. I saw the gigantic work after having admired the "Triumph of Scipio," at the National Gallery, a chiaroscuro in tempera, also depicting an epic event in Roman history, like the Hampton Court work, of which one obtains a fuller understanding after having first studied the beautiful "Triumph of Scipio."

\* I published Morone's picture in my "Architettura Italiana," 5th edition, double plate 92. Permission was given me to reproduce it by Sig. Crespi. Morone's picture is still in Italy.

by Isabella d'Este chiefly during the imprisonment of her husband, Francesco Gonzaga, who defeated the French at Taro, and during her widowhood. The Paradise apartment is the moral antithesis of the rooms in the Corte Vecchia occupied by Isabella in happier days, when she was both wife and ruler.

These rooms witnessed the presence of the illustrious and learned Marchesana, worthy to be ranked with the highest intellects in Italy; they witnessed her conversations and discussions with Giovio, Aldo Manuzio, Titian, Bembo. She was very fond of abbreviations, sententious mottoes, emblems, and symbols, and covered her rooms with these mottoes, the key to whose mystery was hidden in the innermost recesses of her kind spirit. Thus, Isabella preferred to all others the motto "*Nec spe nec metu*," which her clear eyes saw repeated everywhere.

I am illustrating (see illustrations) a delightful ceiling which bears, together with Isabella's name, her favourite motto. The ceiling is of wood, coloured blue and gold, with small projections, on a scale suited to the restricted area which it covers devotedly.

Those who love the beauty of Italy, the ceilings, stucco work, mural paintings on walls fantastically covered with ornament, ought not to forget the Ducal Palace of Mantua, and should at the same time bear in mind the Palazzo del Te. The austere work of the grave and learned painter Andrea Mantegna is not the only type we find here—we are transported more frequently into the pleasing realms of the grotesque by Giulio Romano. Rarely do we find outside Mantua better examples of this fantastic painting than those in this palace, thanks to Giulio and his assistants. Many of these grotesques have been respected by time. The same may be said of the wooden ceilings at Mantua, which still remain to glorify local art, in which they occupy a post of honour. This is why I felt obliged to illustrate various ceilings (see illustrations). As for the grotesques, there are no photographs of these to be had. I therefore refer English readers to Gruner's work, "*Fresco Decorations and Stuccoes*," an old collection of coloured and uncoloured drawings, which are useful in the present instance. As a further example, I may mention the ceiling in the room containing the door of Tullio Lombardo, which expands into a broad frieze in the curve uniting the walls to the vault, with alternating squares and rectangles, the moulded horizontal surface covered with delicate ornament, almost like a small bronze, carved by light and skilful fingers.

The Ducal Palace also contains the celebrated ceiling, conceived with the idea of mystery, in the labyrinth which it describes with the motto "*Forse che sì, forse che no*" ("Perhaps—perhaps not"), more confusing than the labyrinth itself as repeated on this work of art, which has the effect of a vague dream upon those who look on it.

From the ceilings in the Paradise apartment, which are almost like wooden miniatures, we pass on to the ceiling in the Hall of Manto, terrifying in its vastness, which resembles that of the more picturesque ceiling of the Hall of the Upper Council in the Ducal Palace at Venice. Immense, unique, is this hall—but how disfigured! Near at hand is a small staircase, which we descend to enter the castle, forming a continuation of the palace. It was built by Bartolino da Hovara, at the order of Francesco Gonzaga, and was at the time of its erection in the fourteenth century impregnable. It had four towers, one at each angle, with trenches everywhere and battlements which looked most formidable. But the castle was treated with contempt later on during the reigns of Gian Francesco, Lodovico, and Francis II.

Mantegna enriched the much-admired hall of the "*Sposi*" in the castle, which is believed to have been a dining hall, with its daringly foreshortened ceiling and decorated the walls with familiar scenes from the lives of the Gonzaga. After Mantegna, the castle was ornamented by Lorenzo Costa, Lorenzo Leonbuono, and Primaticcio. This latter worked superbly in stucco, as

in the Hall of Manto—which is a fundamental part of the Reggia—and was incomparably beautiful when decorated with the "*Triumph of Caesar*," a work which can only be replaced by the means used in the Hall of the Adventurers, where, after the dispersal of the ancient busts of Alfonso Città and of the so-called Lombardo (1557), their place was taken by common plaster casts, thus serving to provoke still more the wrath of irate Jove—a fresco by Giulio in the vault—against the reprobate and ignorant.

Apart from rhetoric, I should like to insist upon the value of Primaticcio's stucco work in the Mantovian Reggia. A native of Bologna, born about 1570, Primaticcio was educated by Francucci and Bagnacavallo, though he was afterwards influenced by Giulio Romano; he was a painter as well as a sculptor and carver, and if the Bolognese master is not one of the brightest stars in the artistic firmament, his stucco work at Mantua is of a very high order. Thus, in the Hall of Manto there are some festoons with eagles, modelled by him, which have every appearance of being the work of some powerful Latin sculptor; the same remark applies to the stuccos in the Hall of the Marchesi and to Primaticcio's stuccos elsewhere; in the Palazzo del Te, for example, where his work is to be found side by side with that of Giambattista Scultori (1503-1575).

To properly appreciate not only the decorative work of Primaticcio, but that of all the contributors to the Ducal Palace, much would have to be described: friezes, decorative details, medallions, all these ought to be reproduced. And we must not forget the work of the lesser satellites, those anonymous sculptors and painters who, under the direction of Giulio stamped with the impress of their art this Reggia which, like Dante's Beatrice, can be contemplated without fear of weariness.

Mantua is a treasure-house, and for a typical example of a Hall of Renaissance style, large and sumptuous, I would pass by Florence, Venice, and Rome. The Hall of Manto would suffice. Likewise, for a typical example of a delightful boudoir, such as refined womanhood longs for, one need only recall the Paradise apartment; or, again, two small rooms, particularly the second, behind the Hall of Manto. These rooms seem to exhale a delicate perfume, like that from a flowery meadow: it is the caress of poetry, the æsthetic idealising reality, the reality transformed by the ideal.

Having described the details, I now consider the whole; after speaking of Mantegna's figure painting and the elaborate decoration by Giulio, who also painted figures in the Palace, I pass on to the general aspect of the rooms. We will, therefore, turn to the Refectory, or Hall of the Rivers, and to the New Gallery, or Hall of Mirrors, picking out that which is in the best state of preservation.

I can hardly cite as an example the Dwarfs' Rooms, before which the Ducal Dwarfs celebrate, whose reduced dimensions, in comparison with ordinary-sized rooms, are, however, intact. I visited this curiosity of the Ducal Palace at the risk of my personal safety.

The Refectory, or Hall of the Rivers, as it is now more appropriately called on account of its recent enlargement, is the result of the spirited decorative effort of a but little-known artist, Giorgio Anselmi, a Veronese, who transformed the ancient refectory, giving it its present-day appearance, in the eighteenth century. We must not regard the diversity of styles in the Reggia unfavourably, for it came under the influence, not only of the sixteenth and seventeenth centuries, but also of the Empire style. In the sixteenth century the art of the architect Anton Maria Viani, who designed the so-called Ducal apartments, and his pupils, was in favour. In 1775 the Hall of the Rivers was decorated with the Mantovian rivers in Herculean simplicity, and Euterpe with her sceptre gladdens the eye, the Hours rumble along in their chariots, whilst Time, inexorable, is meditating. Other deities are also present in this hall, which is impressive by reason of the grottoes at one end, glowing with colour,

and the interesting door, inlaid with marble with a striking bust in the pediment. All this is shown, more or less clearly, in my illustration (see illustrations). This room is contiguous to the Hall of Mirrors, whose decoration is less showy, and where all is refinement and harmony, enlivened by the picture in the vault extolling the charms of Olympus, with bold figures and ingenious perspective. The iconography of illustrious Mantovians contributes to the importance of the hall, which was thus called the Pantheon of the city. The bunches of fruit and festoons on a gold ground, which decorate it, are most tempting, the whole being partially carried out at a less remote period to the previous hall. Consequently, this hall, like but few others, still contains its furniture, chandeliers, and stools, and the Empire style in all its Neo-classic frigidity is to be seen here. For this style wormed its way into the Ducal Palace, amongst the classic fantasies of the Renaissance, with its sharp, clear-cut lines, its studied symmetry; but it casts but a faint shadow upon the work of Andrea Mantegna, Giulio Romano, and the host of other artists who decorated the Reggia, which is a vision of magnificent beauty, created by the sentimental harmony of Italian art.

We again witness the Empire style in all its pomp if we turn to consider the Green apartment, known as that of the Emperor, which was rebuilt in 1783 by Paolo Pozzo, decorated by Andrea Mones and Gianbattista Marconi, and at one time adorned with tapestries representing the "Acts of the Apostles." These, a new edition of the celebrated tapestries of Raphael, were executed at Brussels, and came into the possession of the Basilica of St. Barbara in 1776, thus forming part of the treasures of the Reggia. They used to be in the Green apartment until they were taken to Vienna, where they still remain. Meanwhile, we remain here.

### SIR ROWAND ANDERSON HONOURED IN EDINBURGH.

IN recognition of the great distinction recently conferred on him as the first Scottish architect to receive the Royal Gold Medal for architecture, instituted by Queen Victoria sixty-eight years ago, Sir Rowand Anderson, F.R.I.B.A., was the guest of the Architectural Societies of Scotland at a luncheon in the Caledonian Station Hotel, Edinburgh. Mr. T. F. MacLennan, A.R.I.B.A., president of the Edinburgh Architectural Association, occupied the chair. The company numbered about 100, and included Lady Anderson, Lord Provost Sir Robert Inches, Sir J. H. A. Macdonald, Sir James Balfour Paul, Sir John J. Burnet, Professor Baldwin Brown, Sir Robert Lorimer, Rev. Dr. Wallace Williamson, and the following croupiers: Messrs. John Watson, Glasgow; Harbourn MacLennan, Aberdeen; and George P. K. Young, Dundee.

Lord Provost Inches, who, on account of Sir Rowand Anderson's indisposition, went to London to receive the medal on his behalf, handed over the medal to Sir Rowand, and read a letter from Sir Aston Webb, expressing admiration of Sir Rowand Anderson's work as an architect, in which he excelled, and also in the cause of education. His lordship declared that Sir Rowand Anderson had done a very great deal to improve architecture and to improve the architects.

Sir John J. Burnet, of the Glasgow Institute of Architects, presented an address of congratulation in the name of the architectural societies of Scotland. The address made reference to the magnificent record of Sir Rowand Anderson's accomplished work, the invaluable services he had rendered to the cause of architectural education, and his untiring devotion to the interests of the profession, which made him well worthy of the highest honour to which an architect could aspire. Sir John Burnet alluded to Sir Rowand Anderson's great characteristics, his constructive power, his knowledge of the craft, and his high ideals of craftsmanship which he had done much to develop. On behalf of his col-

leagues he expressed keen appreciation of Sir Rowand Anderson's inspiration. With that tribute he associated also Lady Anderson.

In support of the address speeches were also delivered by Mr. Harbourn MacLennan, Aberdeen Society of Architects; Mr. G. P. K. Young, Dundee Society of Architects; Mr. T. Forbes MacLennan, the chairman, and Mr. Paul Waterhouse, vice-president of the Royal Institute of British Architects.

The Chairman said they were all proud to show Sir Rowand Anderson's work to admiring strangers as those of an Edinburgh man; they were worthy additions to the architecture of our beautiful city. On behalf of the younger generation he expressed indebtedness to Sir Rowand for his generous and invaluable services in the establishment of sound architectural teaching in Edinburgh, and also for the ideals which inspired him and for the fight he had made against all shams in misapplied architecture.

Sir Rowand Anderson expressed his deep thanks for the great honour conferred on him by the Royal Institute, and his gratification at receiving so generous a tribute from his brother architects.

Sir J. H. A. Macdonald, proposing the toast of the Architectural Societies of Scotland, said that the criticism of their guest's work was likely to be less and less acrid and more and more sweet as his work got that touch of age which was always an improvement to architectural work. There was nothing shabby or sham about his work. He pleaded for the protection of the good buildings in the city, and made some caustic comments concerning the "decoration" of the Royal Scottish Academy front with venetian masts and banners. Sir Robert Lorimer replied. The proceedings then concluded.

### CAPE INSTITUTE OF ARCHITECTS.

THE annual general meeting of the Cape Institute of Architects was held in the room of the Institute, Capetown. The chair was occupied by the President of the Institute, Mr. F. K. Kendall, F.R.I.B.A.

The following gentlemen were elected to serve on the Council of the Institute for the ensuing year:—*President:* Mr. W. J. Delbridge, A.R.I.B.A. *Vice-President:* Mr. F. K. Kendall. *Members of the Council:* Mr. John Parker, F.R.I.B.A.; Mr. William Black F.R.I.B.A.; Mr. James Morris, Licentiate R.I.B.A.; Mr. W. A. Ritchie-Fallon, A.R.I.B.A.; Mr. H. A. McQueen.

Mr. Parker, in moving a hearty vote of thanks to the President and Council for their services to the Institute during the past year, referred in particular and eulogistic terms to the services of Mr. Kendall, the retiring President, during his three years of office.

Mr. Kendall, in responding, said he felt sure that they had but to bide their time patiently and loyally, and in due course, when the sword was sheathed, they would find the opportunity to help to build up and develop their country with the arts of peace. It was very gratifying, he said, to see that the efforts of the Institute to promote a town-planning scheme for the Peninsula, and particularly the Cape Flats, were likely to bear fruit. He understood that the Capetown Corporation were proceeding to secure the necessary statutory power to initiate such a measure as the Institute had recommended to them.

He (Mr. Kendall) trusted that the Capetown Corporation would see their way clear to carry the matter to its logical conclusion as soon as possible, and do it thoroughly by employing the very best available expert advice from overseas to prepare the plans.

The Institute had, the President added, always endeavoured to promote a better understanding between the public and the members of their profession, and generally to direct all doubtful matters into proper channels.

## BRICKS. CHAPTER I.

### THE RAW MATERIALS.

*Written and illustrated by James Scott.*

THAT bricks are made of clay is known to everybody, but few people are aware of the nature of clay. Technically speaking, it is a hydrous, or hydrated silicate of alumina, or conversely, an aluminium silicate, with the formation and properties of which we will deal.

All clays are decomposition products of the disintegration of granites and kindred rocks, which consist very largely of quartz, mica, and felspar. The latter is comparatively soft, and can be scratched with the fingernail. The carbonic acid and oxygen of the air, besides water currents, heat, frost, and other alternating influences have separated the particles from one another, and in the end the modified felspar has chemically combined with some of the quartz or silica. The potash, soda, lime, and similar salts, which are always present in small proportions in granites, &c., have been largely washed away from the remainder, thereby allowing the compounds to become loosened, and to form different combinations. The clay has been carried along in rivers and deposited in gigantic masses all over the globe.

Silica (this is also called *silex*) is a glassy-looking substance consisting of oxygen united with the very refractory element silicon; the latter, when isolated, being black, and usually crystalline, although it is obtainable also in the amorphous state. Sand, flint, and quartz are varieties of silica, the last-named being practically pure.

Alumina is an oxide of aluminium, and the metal can be procured from it when the oxygen is driven out. The astringent salt, alum, can also be prepared from it in the way described elsewhere.

The prefix *hydrous*, or *hydrated*, simply means that moisture is soaked into the constituents, of which it forms an integral part.

These two compounds—silica and alumina—together constitute clay, which in the purest condition is white, *e.g.* kaolin or china clay. Commoner clays are, however,



FIG. 1.—The result of moistening, heating, and drying successively some alumina, as seen through a pinhole, greatly magnified.

stained brown, blue, and so forth, owing to the dispersion among them of metallic impurities such as oxides of iron and cobalt.

Corundum and emery are impure oxides of aluminium, *i.e.* alumina. Rubies and sapphires, also, are the same substance, beautifully stained with metallic products.

Alumina, to the naked eye, merely resembles chunks of earthy matter, and when uncontaminated is white.

As a rule, however, it is brownish, yellowish, or greyish. It may be mottled with varying densities of these colours. Upon rubbing some of it to powder and magnifying it the particles are found to be either shapeless or angular. When it is moistened and dried by heat some parts of it are resolved into the semi-crystalline forms shown in fig. 1, due to the alum.

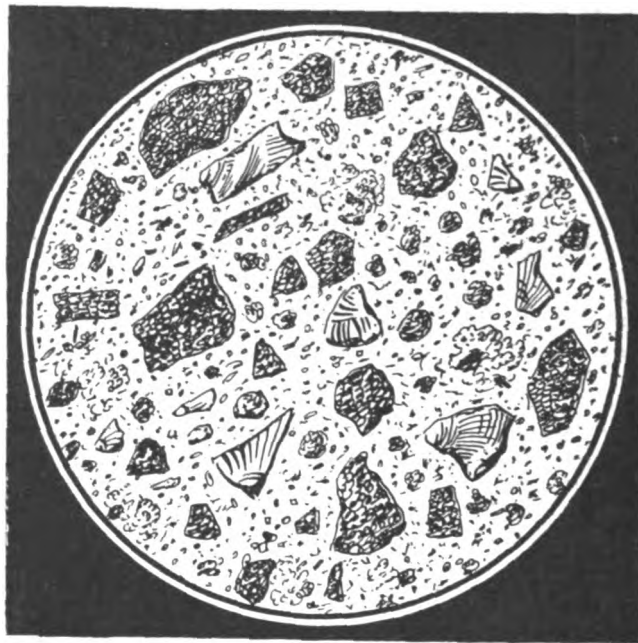


FIG. 2.—Particles of a typical clay as seen through a pinhole, greatly magnified. The lined ones are free silica, the granulated ones alumina, and the others alkaline salts, &c.

A good clay very suitable for brickmaking contains 60 per cent. of silica, 20 per cent. of alumina, and 20 per cent. of other ingredients, including iron, lime, soda, potash, and similar salts.

Clay can be dissolved slowly in boiling caustic alkalis, *i.e.*, the hydrates of lime, soda, and potash. When it is treated with sulphuric acid alum is obtainable. For this experiment it is advisable to dry some white clay for a few hours, and to an ounce of it add two ounces of the acid and an ounce of water. Of course smaller or larger quantities can be handled, but these amounts are given as guides. Keep the fluid in a warm place for several weeks, frequently stirring it meantime with a glass rod, then dilute with six ounces of boiling water and filter it. In this way aluminium sulphate (crude alum) is obtained in solution, while the silica is deposited and removed. Evaporate the liquid until the bulk is one and a half ounces, and there will appear pearly, flaky crystals of the substance just named. Pour away the liquid, collect the crystals, and re-dissolve them in hot water; add to it a solution of sulphate of potash (made with two ounces of boiling water and as much sulphate of potash as it will absorb), and stir until all is cold. The sediment thereby evolved is alum, which can be recovered by filtration.

Some very remarkable large and perfect octahedral crystals can be obtained by suspending a thread, cinder, or other gripping substance in a very strong solution of alum, this having been preferably made by allowing boiling water to dissolve as much of the salt as possible.

A fairly clean clay is shown magnified in fig. 2. The little particles covered with lines represent uncombined silica or quartz, which is always recognisable by means of the conchoidal fractures. The pieces sparkle very strikingly amid the more sombre portions of combined and free alumina.

Scattered among most clays are tiny granules of sand and other mineral grit which have not been chemically united. The exact percentage of the real clay, that is to say, the plastic component, is often comparatively small, yet it is sufficient to keep the whole mass together coherently. For pottery work the relative amount of



this "essence" must be larger. The action of a suitable quantity of lime is such that the slimy portion of clay is assisted in the coagulating or solidifying process.

When clay is heated in sulphuric acid many of its minor, but not unimportant, ingredients, are converted into sulphates, and dissolve out as glistening, minute crystals, of the kind shown in fig. 3.

The plasticity of clay is a somewhat remarkable phenomenon, and is due primarily to the formation when wet of a colloidal slime, which covers all minute solid particles in the form of films. During its production some of the potash leached out from the original granite combines with the modified silica to constitute a jelly. When quite freed from the gritty parts of the clay this slime can be dried so hard that vigorous blows with a hammer are needed to break it. Under the microscope the gelatinous substance looks like a lot of frail, floating, transparent fluff, somewhat resembling scraps of raw egg-white dropped into water.

The driest of clay as judged by ordinary tests still retains some moisture, and it is only during the process of firing of the bricks that it is driven entirely away.

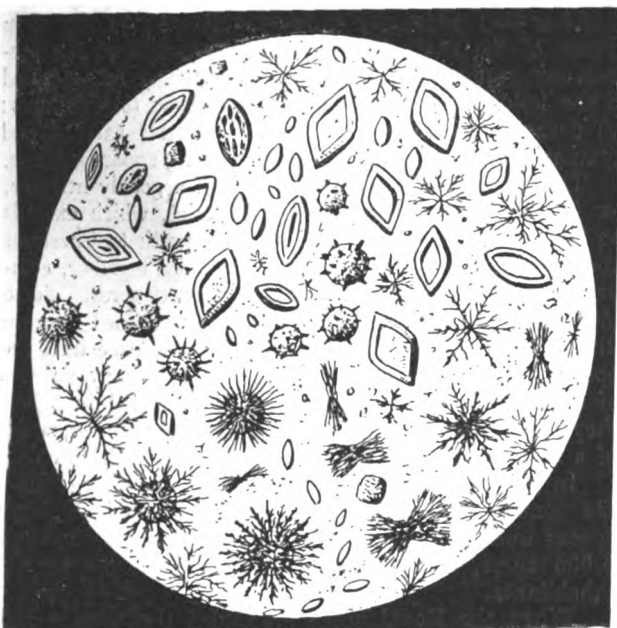


FIG. 3.—A remarkable result obtained by boiling clay in sulphuric acid (oil of vitriol) as seen through a pinhole, greatly magnified. Alum is produced similarly.

When once clay has been burnt in this manner nothing can again restore it into clay since its constitution is too severely altered by the experience. The change from clay to brick is accompanied by dehydration, shrinkage, and agglomeration. A certain proportion of well distributed sand prevents too great a contraction.

If too much lime has been added the heating oxidises the free portion of it to quicklime, and this readily imbibes moisture from the air, becoming meantime slaked lime, which washes out and leaves the bricks so much the worse for the removal. Consequent cracking and settlement of the more solid parts follow.

Should an excess of alumina be present the bricks shrink unduly while burning, and fracture considerably in the finished state. On the other hand, should they contain too much silica they become porous and brittle. Chalk is sometimes added to the clay to imitate the scarce "malin," which once gave the goods a commendable quality.

Gault bricks, which are yellowish or cream in colour, contain a well-balanced percentage of lime. Very high temperatures cause these to become grey, blue, or blackish, the tints being caused by the evolution of magnetic oxide of iron from the ordinary oxide.

What must be called artificial bricks are prepared with moulded sand and slaked lime, heated to about 160° C. (i.e., 320° F.) under steam pressure. A

gelatinous silicate of lime, practically glass, is thus formed, and binds the sand grains together, thereby forming a dense, impervious substance. It is, however, liable to fracture when exposed to excessive strain.

## THE OPEN SPACES OF LONDON—PAST, PRESENT, AND FUTURE.\*

By LAWRENCE CHUBB.

THE Open Space movement, as we know it, is of modern origin and growth. It came somewhat tardily into existence when it was at last realised that the attraction for the rural worker (with small opportunities for bettering his position) of a great city, where streets were deemed to be paved with gold, could not be arrested. It was a persistent force acting in direct contravention of all attempts at restrictive legislation.

In Tudor times the pulse of growing London was gradually bursting through the narrow confines of the City Wall. What is perhaps the earliest authentic view of London may be said to illustrate the beginning of the process. It shows the old Church of St. Paul looking out over the City at its feet beyond the ramparts to the green fields stretching away to the northern heights of Hampstead. Along the river, towards Westminster, a narrow riband of mansions and palaces was making an appearance, and here and there the presence of a church betrays the first steps towards expansion.

To check this unseemly growth Queen Elizabeth, by Proclamation, charged and straightly commanded "all manner of persons, of what quality soever they be, to desist and forbear from any new buildings of any houses and tenements within 3 miles of any of the gates of the said City of London to serve for habitation or lodging for any person, where no former house hath been known to have been in the memory of such as are now living."

What would now be said by the modern building speculator of such restrictions? And worse was to follow, for on the settlement of the Commonwealth building increased so rapidly that, in 1656, an Act was passed for preventing the erection of houses within ten miles of the City. The preamble gravely recites how "the great and excessive number of houses, edifices and out-houses, and cottages erected and newly-built in and about the suburbs of the City of London, and in the parts thereunto adjoining, is found to be very mischievous and inconvenient and a great annoyance and nuisance to the Commonwealth," and on account of this "growing evil" having "so much multiplied and increased," the Act inflicted upon the builders and occupiers of such erections the penalty of paying to the use of the Commonwealth one year's rack rent for every house erected after March 25, 1620, and having four acres of land attached to it, and of paying for every house erected after the passing of the Act, a penalty of £100 and £20 per month for the use of the poor so long as it continued to exist.

This Act was more honoured in the breach than by the observance, for by the year 1700 the population of Greater London—extending to Uxbridge and Staines and Twickenham—had swollen to nearly three-quarters of a million.

Nevertheless, even by the middle of the eighteenth century London proper stopped at Hyde Park Corner, and the banqueting house of the Lord Mayor in Oxford Road still enjoyed rural surroundings. Squares were beginning to appear, but beyond the site of the British Museum vast stretches of open fields remained. Hoxton, Hackney, and Haggerston were merely small villages; St. Pancras, the City Road, and Finsbury were in the country; Mile End was a single road sparsely lined with houses touching the fringes of fields; on the south a windmill stood at the edge of St. George's Fields near the Elephant and Castle; and nothing but small hamlets are shown on the contemporary maps of Rocque and others.

\* A lantern lecture delivered before the London Society in the Hall of the Royal Society of Arts, Adelphi, W.C.



In the west houses stopped at Westminster. Indeed Tothill Fields might have been in the country, and Hammersmith was little more than a respectable village.

By the year 1800 the population of Greater London had grown to a million, the bulk being centred on the north of the river, but the wilderness of houses was still under some control, and a short walk in any quarter of the Metropolis led to the green fields.

Even so, Londoners must have needed facilities for healthful recreation. How were her wants supplied in the days before her modern public parks were provided?

In the first place, the suite of Royal parks in the west—Hyde Park, St. James's Park, and Green Park—had acted as a barrier against the onrush of bricks and mortar. They had emerged out of the misfortunes of the monks of Westminster forced by Henry VIII. upon the dissolution of the monasteries to surrender the greater part of their possessions. On the authority of Doomsday, it is of interest to note that a great proportion of land in Westminster was, in the time of the Conqueror, commonable. The appropriation by the Sovereign of Hyde Park, in one sense, achieved a restoration, for this suite of open spaces have gradually come to be regarded as public possessions. Nevertheless, in the time of the Commonwealth, Hyde Park had a narrow escape. It was sold at auction in lots, the most important part being sold to a ship-builder, Anthony Dean, for £9,020. The Park was already used by the nobility for pleasure and recreation, and John Evelyn in his Diary bitterly complains of the restrictions imposed by the new owner. "I went," said he, "to take the aire in Hyde Park, when every coach was made to pay 1s. and every horse 6d. by the sordid fellow who purchased it of the State."

After the Restoration the parks came again into the hands of the Sovereign, and a considerable area was appropriated by William III. to form the private grounds of Kensington Palace, much of which has happily been thrown open again as Kensington Palace Gardens. We have all heard of the subsequent desire of Queen Caroline to take in still more of the park for her private use; and of the laconic reply of Walpole to her Majesty's inquiry as to the probable cost—"Three crowns," was the answer.

Access to Hyde Park was at one time denied to children, and in the time of James I., when St. James's Park began first to be esteemed as a resort for those attached to the Court, the entrance of liveried servants was forbidden. Even in those days St. James's Park, with its Rosamund's Pool (filled up in 1772), its groves of mulberry trees, and its vines, must have been a place of rare beauty.

Next in importance came the Commons, where the humbler folk took their recreation, and which rendered almost unnecessary the provision of other public open spaces. St. Leonard's, Hackney, Hornsey, Islington, Kensington, St. George's-in-the-East, St. Giles'-in-the-Fields, St. Giles' Without, St. Martin's-in-the-Fields, and Shoreditch on the north all had their commons. On the south the present Kennington Park formed part of a common as large as Peckham Rye; a common stretched up Brixton Hill; others existed at Lambeth, Stockwell, Dulwich, Sydenham, Norwood, and Newington, and a huge tract of land from Blackfriars Road to the Elephant and Castle and almost to Lambeth Bridge, formed the notorious St. George's Fields, commonable land where the Lord of Misrule held full sway, where fairs and jousts, games and diversions of all kinds, alternated with riots and quarrels, took place.

Had this girdle of commons survived there could have been little need of an open space movement for London, and the local authorities would have been spared a vast expenditure.

In addition to the commons and Royal parks, there existed village greens, like Camberwell Green, and butts set out under the provisions of the Archery Act, 1541, which, in order to rescue archery from "sore decay,"

directed the parish officers to provide butts, and gravely forbade the playing in public places of tennis, bowls, clash or cloysh, shove-groat, coying, logating, or any other unlawful games.

The name Newington Butts furnishes an example of this type of open space, although unhappily the land was enclosed in the hey-day of the Commons Inclosure movement. Then there were numerous pleasure gardens and wells like Sadlers Wells, reputed to possess virtues whose medical value seems to have been appraised by the nastiness and strength of the water. These spaces were all privately owned and maintained, and attracted vast and fashionable crowds. Spring Gardens still remains in name, though it is now happily more associated with the arduous work of administration than with thoughts of pleasure and scandal. Mulberry Gardens gave place to Buckingham Palace, and last of all disappeared the Vauxhall and Surrey Gardens on the south of the river.

Of the gardens attached to institutions of various kinds we have happily retained as welcome lungs, if not as public open spaces, the grounds of the Charterhouse, of the Foundling and Chelsea Hospitals, and of the various Inns.

After this necessary cursory reference to the open spaces of the past, the public playgrounds of the present day require consideration. They may be classified in the following order:—(a) Royal parks; (b) commons; (c) parks, recreation grounds, ornamental gardens and gymnasias; (d) disused burial-grounds; (e) square gardens.

These breathing spaces are indeed a goodly heritage, for in the Metropolitan Police District, which extends on the south to Epsom and on the north to Cheshunt and Pinner, the open spaces, when added together, comprise an area of approximately 25,000 acres. Some idea of the vastness of this area can be gained from an illustration. If brought together in one large tract the open spaces of Greater London would occupy an area of about forty square miles; or, if extended in a line, they would form a continuous strip over three-quarters of a mile broad stretching from London to Brighton.

In London proper—that is, within the district under the control of the London County Council—the open spaces under the care of the local authorities amount to 6,665 acres, or one acre of open space to every 678 inhabitants.

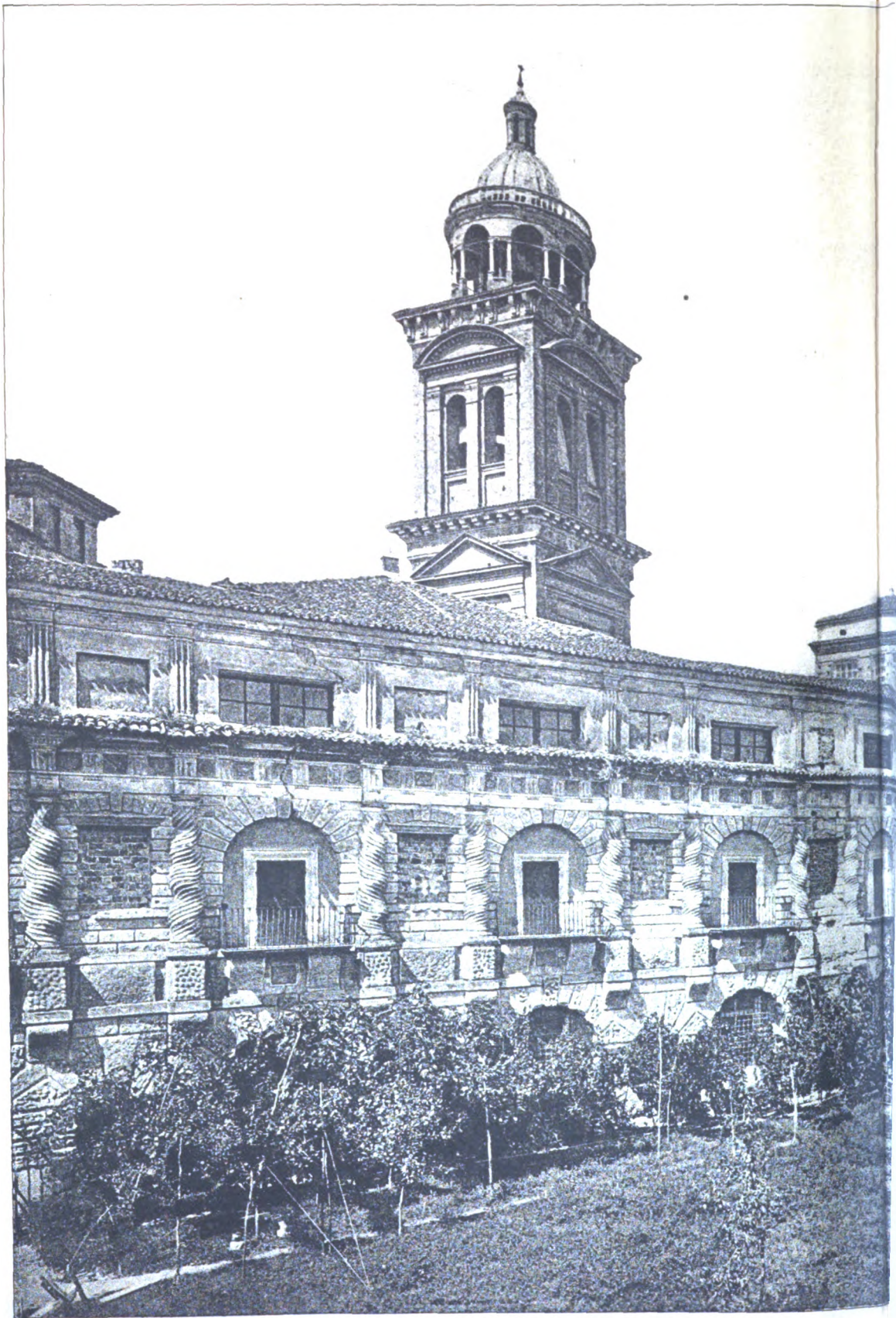
When the Royal parks are added the area is 8,169 acres.

The capital expenditure incurred in securing and laying out this vast area, but excluding the Royal parks, has amounted to about two million pounds—something like 8s. per head of the population. It is possible to say without fear of contradiction that none of the expense of our local authorities has been less criticised than this, and also that none has ensured more pleasure and profit to the citizens.

Perhaps the most striking point in connection with the movement is the fact that practically none of the 575 open spaces dedicated to the public use and enjoyment in Greater London existed as such 100 years ago. It is true that the public resorted to the commons for the purposes of pleasure and recreation. They were there in the hard and unsympathetic view of the Law Courts as trespassers, and the use for centuries of Stockwell Green for the playing of games did not suffice to save that land from falling into the hands of the building speculator. It is also true that the public enjoyed a certain measure of access to the Royal parks. They did so by favour and not as of right, although liberty of access was granted to them by the Crown in the case of Regent's Park, which was formed under the direction of the Prince Regent in 1812, upon the laying out of the Marylebone Park hunting estate of the Sovereign.

Of the other large Royal parks to which public access is fortunately now assured we have already considered Hyde Park, St. James's Park, and Green Park. We must not overlook Richmond Park, which in large measure is due to the rapacity of Charles I. in enclosing



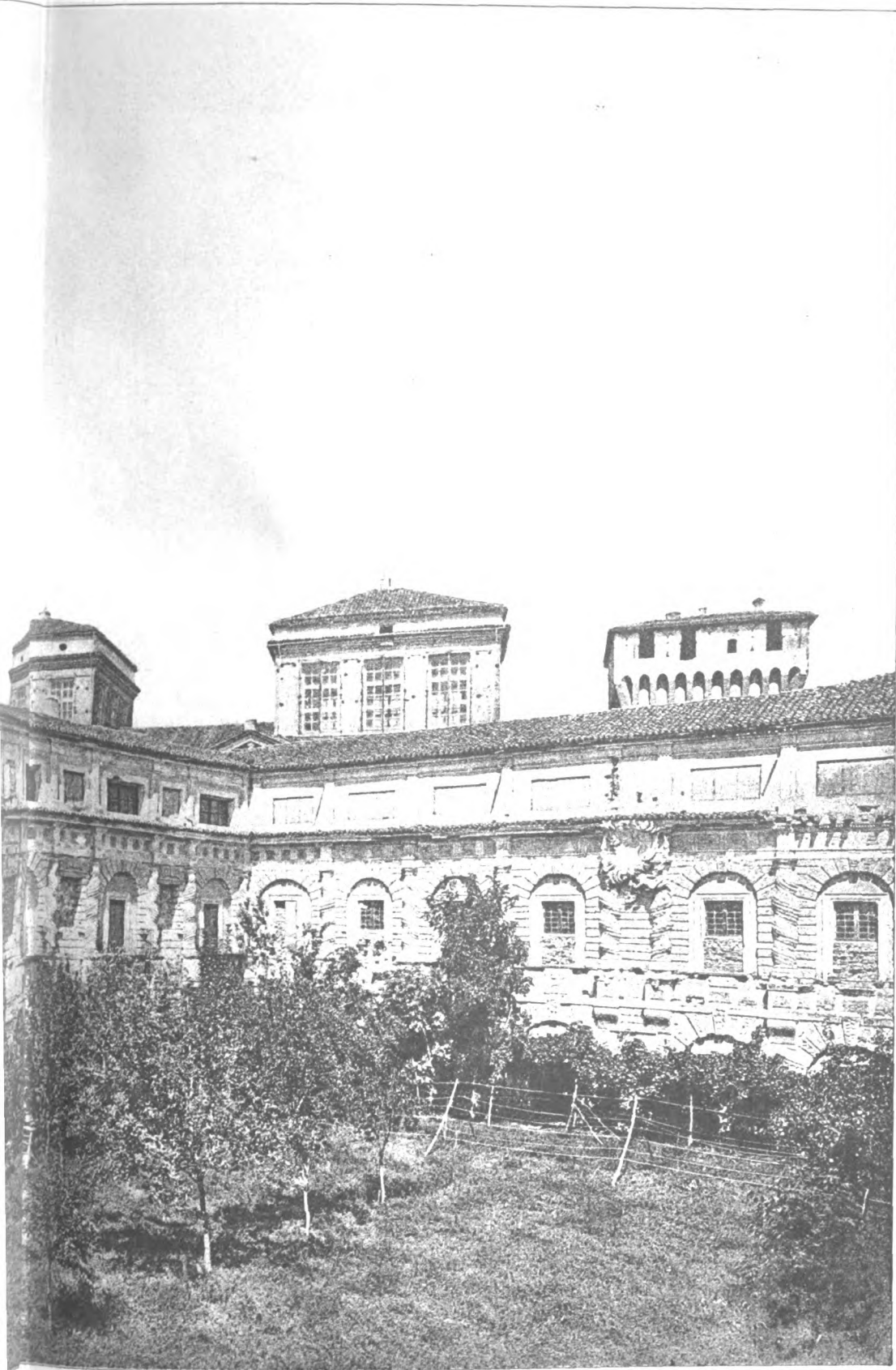


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a substantial area of Ham Common, or Bushey Park, and the charming grounds attached to Hampton Court Palace. These parks form fine and beautiful open spaces of which the capital of the Empire may well be proud.

By the middle of the nineteenth century, however, the social needs of the community began to receive the earnest attention of reformers, and the need for the provision of recreation grounds became urgent. Battersea Park was formed in 1846 upon a suite of arable common fields. Kennington Park was laid out in 1848 on the remnants of Kennington Common, and we find the Metropolitan Board of Works acting in 1857 to secure the preservation of Finsbury Park, and again in 1863 to acquire Southwark Park. In the meantime, the Office of Works had formed the most beautiful of the nearest East End open spaces, Victoria Park, applying for that purpose the proceeds of the sale of York House, St. James's Park.

It nevertheless needed something to quicken the imagination and stir the enthusiasm of the public before the movement for providing open spaces could make headway. This incentive was found in the serious attacks which were being made upon Metropolitan commons.

Epping Forest, Hampstead Heath, Streatham, Wandsworth and Wimbledon Commons. What a wealth of happy memories the mere recital of such names arouses! They are linked with our earliest recollections as open spaces where no forbidding commands to "Keep off the Grass" ever marred the enjoyment of young spirits. As we grew older we realised the practical utility of the lands as recreation grounds; and, finally, we came to learn that they have an even greater value, inasmuch as they bring to the doors of town-dwellers a message of untamed and unspoilt nature, and a sense of quiet beauty and restfulness so essential in these days of stress and strain.

And yet the fate of each of those commons, and many more, hung by a thread, for they were subjected to a series of onslaughts which threatened to engulf them.

(To be continued.)

## OBLIGATORY TOWN PLANNING.\*

### (1) THE CASE.

By HENRY R. ALDRIDGE, Secretary, National Housing and Town Planning Council.

### (2) PROVISIONS WHICH SHOULD BE MADE OBLIGATORY.

By COUNCILLOR HAROLD SHAWCROSS, J.P., Chairman, National Housing and Town Planning Council.

#### (1) THE CASE FOR OBLIGATORY PLANNING.

In discussing the question of obligatory planning it is clear that there are two points of view from which one can with service consider it, viz.: (1) The point of view of the skilled engineer; and (2) the point of view of the Member of Parliament.

#### *The Point of View of the Skilled Municipal Engineer.*

The author will first consider the subject from the point of view of the members of the Institution and endeavour to secure their intellectual assent to the proposition that planning should be made obligatory on local authorities.

In making this endeavour it will be assumed that three members have been commissioned by a benevolent autocrat to undertake three distinct tasks with "carte blanche" powers:—

1. To provide for the establishment of a complete new city of 50,000 inhabitants.
2. To provide for the establishment of a new suburb of 1,000 houses.

3. To provide for the development of one of the new small holdings colonies projected by the Government Bill.

1. Taking first in order the fulfilment of the task of establishing a new city, would the members entrusted with this task allow it to grow in the same way as the cities in the past have grown?

It will at once be agreed that not a single member of this Institution would dream of allowing the city to grow on the same uncontrolled lines that have characterised the growth of the centres of such cities as Manchester and Liverpool. The very least they would insist upon would be that the first step in town planning control should be taken, viz., the development of the town in accordance with by-laws securing minimum widths of streets, securing certain curtilages at the rear of all dwellings, and breaks in the lines of dwellings.

But would they be content with the exercise of by-law control?

There can only be one answer to this question. Every skilled municipal engineer worth his salt would regard himself as unworthy of his profession if he did not decide to make it a real town, and not a congeries of by-law streets.

One can imagine him at the threshold of his task clearly stating for the guidance of himself and his assistants the following cardinal aims to be achieved:—

1. The harmonious development of the city in accordance with a well-thought-out plan;
2. The provision of an abundant supply of pure water.
3. The establishment of systems of drainage (on the water carriage system) and of sewage disposal (of such a character as would make typhoid and other filth diseases practically unknown in the new city).
4. The construction of proper communications between the different parts of the town and between the town and adjacent towns and districts.

The author has placed first in order the preparation of a plan, and there can be no doubt that this is the place which every skilled engineer would give to it.

2. Taking next the second case, viz., that of the skilled engineer entrusted with the task of establishing a new suburb with 1,000 houses, would he permit his village to grow on by-law lines?

Can there be any doubt as to the answer? He would surely welcome with delight the opportunity to create a well-proportioned suburb, and would not dream of permitting the reproduction of the monotony which marks the typical by-law suburb.

There is in everyone, and not least amongst the members of the Institution, an almost instinctive desire to create new and artistic forms of growth. When the chance to create comes, then the old practice of turning out new streets in suburbs like concrete slabs made in a mould—all the same width and shape—is placed aside as unworthy of men of skill and education.

The skilled engineer entrusted with the formation of a new suburb would, therefore, in fulfilment of the task entrusted to him by the benevolent autocrat, place amongst the primary duties to be done that of planning the site of the suburb and making it a veritable "rus in urbe."

3. The development of one of the new small holdings colonies.

In approaching this task an engineer would realise that he had at least three distinct problems to consider:—

- (a) The grouping of the cottages;
- (b) The fixing of the sites of various co-operative and public buildings. (It would be clear to him that those buildings used for co-operative and distributive purposes should be placed at focal points and that above all the sites for them should be chosen with a view to the provision of traffic facilities.)
- (c) The provision of access to the various holdings.

\* A Paper prepared for the forty-third Annual General Meeting and Conference of the Institution of Municipal and County Engineers at Blackpool on June 29 and 30 and July 1.

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It would then be clear to him that his task could only be fulfilled by making a plan for the development of the whole area.

The Departmental Committee realised the importance of this when they decided to include in their report a kind of trial plan. The fact remains that those responsible for the report felt bound to submit a suggested plan of lay-out with it.

It is thus beyond question that in each of these three cases the skilled engineers called in to serve the benevolent autocrat would regard as a fundamental duty to be performed the preparation of a carefully thought out scheme of planning.

But although this be granted, critics will at once rise up and say: "That is all very well, but we are not living in a country governed by benevolent autocrats. This is an old country in which progress is of a patchwork kind, and, quite apart from any democratic doubts we may have as to the value in use of any kind of autocracy, the fact remains that there is no chance that such a being would be permitted to assume control of our affairs. The arguments possess therefore for us no value whatever."

At first it would seem that this argument blows into the air the whole fabric, but further reflection will show that it does nothing of the kind.

There is in existence a form of benevolent autocracy which year by year issues decrees which must be obeyed.

It is the special function and privilege of Parliament to play this rôle of the benevolent autocrat. In case any doubt be felt in regard to this point consider for a moment what the action of Parliament has been in regard to education. Fifty years ago great numbers of working people were illiterate. But Parliament then commenced to play the rôle of the benevolent autocrat, and, partly by compulsion, and partly by persuasion (in the shape of grants), the giving to every child of a minimum of educational training has been made obligatory on local authorities.

That the action thus taken by Parliament is autocratic in the sense that disobedience is not permitted, is beyond question. That it is benevolent all good citizens realise.

But action by Parliament in the rôle of the benevolent autocrat has not been limited to the sphere of education. In the policing of towns and country districts, in the control of factory conditions, and in many other ways, Parliament has said: "Here are laws to be obeyed and not evaded."

It is interesting to note that before autocratic action is taken by Parliament two stages are generally passed through. First of all local authorities are encouraged and persuaded to prepare regulations and impose obedience to these upon the communities under their control. Then in the second stage Parliament takes the stronger line of insistence that every local authority shall prepare or adopt regulations and impose them upon their local communities. The second stage is generally accomplished in one or both of two ways—by departmental pressure or by direct legislation. The adoption of water supply schemes and of sewage disposal schemes provides a good example of the first method of action by departmental pressure, and the setting up of education committees and the spending of large sums provided partly out of the rates and partly by national grants on education is an example of the second method.

It is, however, not material to the argument which method is adopted, provided that the goal is reached. What is important to the State is that if the subject is of vital national importance the goal should be reached with the least possible delay, and for this reason the second method of placing upon all local authorities the performance of the task as a duty to be performed may be regarded as the more statesmanlike.

#### *The Point of View of the Member of Parliament.*

The Member of Parliament, before he gives his vote for the exercise of the power of the State (making it obligatory on local authorities to undertake new duties), rightly insists that he shall be definitely satisfied on

several points—principal amongst them being the following:—

- (a) Is the by-law method of control so inadequate as to render it necessary to make the preparation of planning schemes obligatory?
- (b) Would it not be better to leave the adoption of the permissive powers of the Act of 1909 to the judgment of the local authorities? If there is a real need for the exercise of town planning control will they not seize the opportunity presented to them of preparing town planning schemes?
- (c) Will it not be best for us to gain more experience in the practice of the art of town planning before making the preparation of schemes compulsory?
- (d) Even if the case is clear in favour of making the preparation of planning schemes in urban areas obligatory on local authorities, is there any need to make the preparation of planning schemes obligatory on rural local authorities?

(a) *The inadequacy of the by-law method of controlling development.*—Taking these points in the above order a little reflection will show that the by-law powers of local authorities are quite inadequate to secure proper control over areas which are in course of development.

For example, in order to make clear how limited the powers possessed by local authorities really are—when town planning schemes are not prepared—the following definite points may be mentioned:—

1. Local authorities have no power to insist that only a certain proportion of a site shall be covered. All that they can insist upon is that each house shall have a certain curtilage space reserved for it at the rear. This space is usually 150 square feet.

2. Local authorities have no power to regulate the height of buildings. An owner may build to any height he likes provided that he does not interfere with the right of light of his neighbours.

3. The defining of building lines in streets may be good or bad just in so far as the ideas of the first owner who builds may be good or bad. Given the establishment of a bad building line by the owner who builds first in a street, the local authority is powerless to protect the amenity of the street.

4. Except where the provision of cross streets is required under local acts or by-laws, a local authority has no power to insist on cross streets, and a road may be made of great length without a break if the owners so desire. There is no power to restrict the building of long, unbroken rows of houses. In some cases as many as sixty to eighty houses have been built in monotonous lines without a single break in the line—each house the exact counterpart of the other.

5. So long as the width of roadway and footway required under the by-laws is provided local authorities have no power of control over the distance of the setback of the houses from the footways, and have no power to require the provision of gardens and open spaces to serve as lungs for a district. The provision of open spaces is left to private generosity, or is made the subject of heavy payments out of public funds when the land required has become desirable building land with an enhanced value.

6. Local authorities have no power to prevent a house being built upon any spot the owner wishes, and may not even insist upon proper access being given to it. The site may be of such a marshy character as to render the maintenance of the proper health of the inhabitants of the houses when built almost impossible, but local authorities have no power to prevent this action being taken.

It is thus apparent that in areas for which town planning schemes are not prepared landowners can lay out their land according to their own ideas without giving real consideration to the development of land belonging to other owners and quite irrespective of the public convenience. Small builders, who up to now have erected



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most of the working class houses, can develop as they like the plots of land they buy, provided they observe the provisions of the by-laws. In but few cases when land is sold is any provision made for the class of houses to be erected, and a builder can, if he so desires, erect houses of the cheapest character amongst the best residential property—thus greatly depreciating it. Owing to the same lack of restrictive powers factories can be placed anywhere in a district and a whole neighbourhood of good houses may be ruined by a factory being erected in their midst.

But there is no need to labour the point. The inadequacy of the by-law method is now admitted on all hands.

(To be continued.)



[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### Aberdeen versus Foreign Granite.

SIR,—“Merchant” desires you to permit him to state that your note gives an altogether misleading account of the position of affairs, and you permit him to do so, but is his own statement not altogether beside the mark? It is generally understood that the reason for the increased sale of foreign granites is the cheaper cost of production as compared with Aberdeen. This may be partly accounted for by the fact that most of the quarries have descended to such a depth that the costs in winning have been thereby very greatly increased; but in the district can be found plenty of granite the most beautiful to be found in any country. Capital to open up would be required. Given, a duty was imposed upon the import and no doubt we should see a revival of the Aberdeen granite industry. I have no interest in any Aberdeen quarries. Sir.—Yours, &c.,

ANOTHER MERCHANT.

#### ARCHITECTS AND MILITARY SERVICE.

ALL those architects desirous of joining the 23rd County of London Regiment will be applied for *en bloc* on Saturday, July 15, provided they will meet together at the Regimental Headquarters, 27 St. John's Hill, Clapham Junction, on this date at 3 p.m.

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#### BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

##### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

##### ENGLAND.

###### BEDFORDSHIRE.

*Bedford*.—Hospital: proposed porter's cottage.

###### BUCKINGHAMSHIRE.

*Long Wick*.—Saw Mill: additions. Mr. T. Thurlow, architect, 25 High Street, High Wycombe.

###### DEVON.

*Newton Abbot*.—Tannery: additions for Messrs. Vicary & Sons.

###### DURHAM.

*Annfield Plain*.—No. 1 Front Street: additions for Mr. R. Johnson.

###### ESSEX.

*Buckhurst Hill*.—“Beech Lodge,” Epping New Road: additions for Mr. H. Brock.

*Leytonstone*.—St. Augustine's Church: proposed rebuilding.

*Stratford*.—St. Stephen's Church (£2,200).

###### LANCASHIRE.

*Cadishead*.—P.M. Sunday School.

*Rufford*.—Premises, Smithy Lane: additions for Mr. Pilkington.

*Tarleton*.—House, Hesketh Lane: alterations for Mr. J. Smith.

*Todmorden*.—Cornholme Parish Church: proposed Sunday school.

*Walney Island*.—The “Ferry” Hotel: rebuilding.

###### SHROPSHIRE.

*Wellington*.—Workhouse: alterations for B.G. (£930).

###### SOMERSET.

*Yeovil*.—Factory, Court Ash: additions and alterations for Messrs. Atherton & Clothier.

###### STAFFORDSHIRE.

*Blackheath*.—Factory. Messrs. Buckland & Farmer, F.F.R.I.B.A., architects, Norwich Union Chambers, Congreve Street.

###### SURREY.

*Barnes*.—Mortlake garage: sundry works for London General Omnibus Co., Ltd.

*Richmond-on-Thames*.—No. 5 Lower George Street: addition. Messrs. Brewer, Smith & Brewer, architects, 11 The Green.

The “Compasses” p.h., Petersham Road: addition. Mr. K. D. Young, F.R.I.B.A., architect, 17 Southampton Street, Bloomsbury, London.

The “Fox and Duck” p.h., Petersham: addition. Messrs. Yetts, Sturdy & Usher, F.F.R.I.B.A., architects, 45 Finsbury Pavement, London.

###### WARWICKSHIRE.

*Nuneaton*.—Church of “Our Lady of the Angels”: proposed tower and enlargement.

###### YORKSHIRE.

*Barnsley*.—Lock-up shop, &c., Market Street, for Mr. D. Snowden.

*Bridlington*.—House, Cardigan Road. Mr. T. Gray, builder, Belgrave Road.

*Castleford*.—Proposed P.M. chapel, Townville.

*Fitzwilliam*.—Twenty-eight houses, for the Hemsworth and South Kirkby Collieries, Ltd.

*Hull*.—The Sailors' Orphan Homes: extension (£10,000).

*Mytholmroyd*.—Two houses, Caldene Avenue, for Mr. C. Wade.

##### WALES.

*Llanelly*.—Two houses, Hedley Terrace. Messrs. Lloyd Brothers, builders, Norbury, Bryncaerau.

*Port Talbot*.—The Aberavon and District Hospital: the Rupert Hallows V.C. Ward. Mr. F. B. Smith, architect, St. Oswald's Chambers.

*Swansea*.—Garage, St. John's Road, Manselton, for Mr. R. Davies.

##### SCOTLAND.

*Aberdeen*.—Two houses, Rosebery Street, for Messrs. J. Shirras & Son. Mr. George Watt, architect.

*Arbroath*.—Farmhouse, Little Cairnie: addition for T.C. Granary premises, East Grimsby: reconstruction for Messrs. J. Grant & Sons, Ltd. (of Dundee).

*Dundee*.—House, Clepington Road: additions for P. D. Mitchell, Ltd.

*Greenock*.—Shops, Holmscroft and Roxburgh Streets, for the Central Co-operative Society.

Store, Port Glasgow Road: additions for the East End Co-operative Society.

*Stirling*.—Rockvale Mills: addition for Messrs. J. Templeton & Co., Ltd.

Sawmill, office and stables, Back o' Hill Road, for Messrs. Meiklejohn & Ferguson.

Caledonia Works, St. Ninians: addition for Messrs. J. & W. Somerville.

##### IRELAND.

*Carrickfergus*.—Six cottages for the Governors of Sheils Charity. Mr. R. M. Close, M.R.I.A.I., architect, 13 Donegall Square North, Belfast.

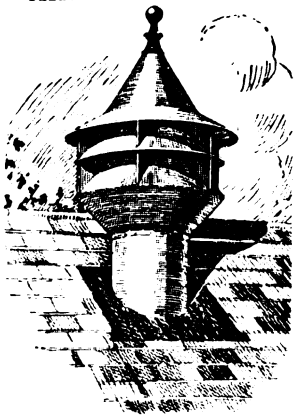
*Dublin*.—Business premises, Baggot Street. Mr. T. F. McNamara, architect, 192 Great Brunswick Street. Messrs. H. & J. Martin, Ltd., contractors, Grand Canal Street.

*Maddybenny*.—Labourer's house, &c., for Dr. W. K. Law. Mr. S. J. McFadden, C.E., architect, Queen Street, Coleraine, and 61 Church Street, Ballymena.

*Mount Bellew*.—House for Mr. T. Naughton. Mr. J. L. Dunne, C.E. (of Ballinasloe), architect.

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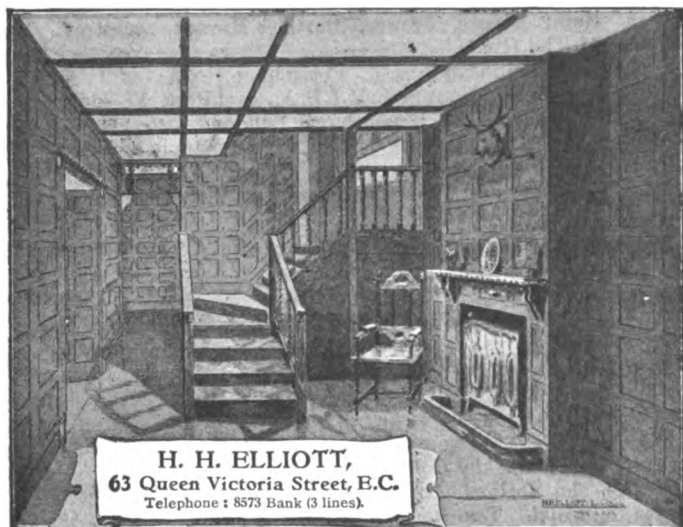
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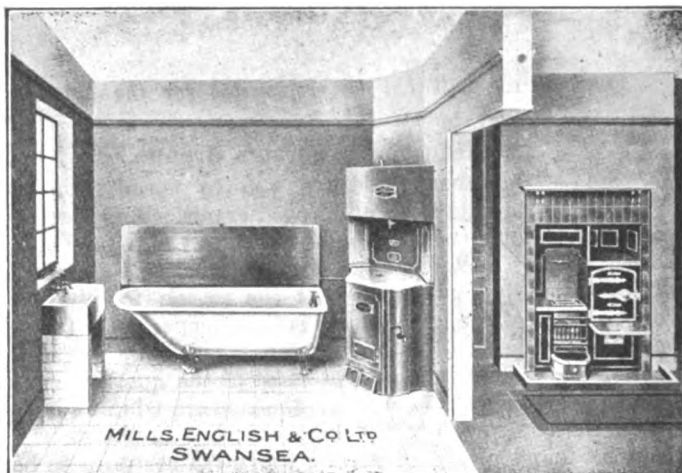
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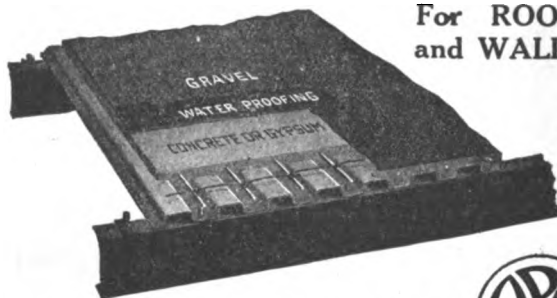
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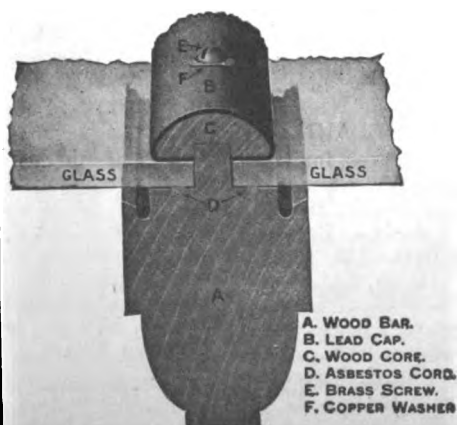
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# THE ARCHITECT

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## FORTHCOMING EVENTS.

*Monday, July 17.*

Civic Arts Association : Opening of the Exhibition of Designs for War Memorials at the R.I.B.A., at 3 P.M.

*Tuesday, July 18.*

Somerset Archaeological and Natural History Society : Annual Meeting at Taunton, at 11.30 A.M.

## THE SOCIETY FOR THE PROTECTION OF ANCIENT BUILDINGS.

THE annual report of the Society for the Protection of Ancient Buildings, dealing with the work of the past year, is, as might be expected, a reflex of the effect of the war upon the normal activities of the country, in its narration of many preservative operations, we will not say restorations, which have had to be deferred during the present upheaval of usual conditions. Still, the Society has managed to collect quite a respectable record of good work, either accomplished or in progress, not unmingled with some instances of failure at least to achieve complete success.

An introduction to the report by Mr. Somers Clarke on the subject of "War Memorials" deals trenchantly with some of the abuses that too often characterise modern memorials, particularly with the fatal lack of congruity both of material and treatment that results from the conception of a design without reference to its environment. This article we give in extenso elsewhere.

Although the original profession of faith in which the principles of the Society for the Protection of Ancient Buildings were proclaimed at its foundation in 1877 are in the report "here reprinted without alteration," it is evident that the present-day administrators of the Society have, as we think rightly, departed from the original attitude of "anti-scrape," and follow, more rationally, the lines on which artists of all ages have worked, in adapting the productions of their ancestors to the requirements of their own time.

There is a wide scope for the exercise of common-sense and sound judgment in the steering of a middle course between the practices of the ardent restorers of the Victorian Gothic era and the principles of the anti-scrapers who preached that if an ancient building "has become inconvenient for its present use" we ought "to raise another building rather than alter or enlarge the old one," and the present Committee of the Society have so far departed from the tenets of its founders as to record with approval the somewhat drastic alterations by which the ancient tithe barn in the Rectory grounds at Belbroughton, Worcestershire, "has recently been repaired and adapted as a Church Hall." As the adaptation includes such alterations as the substitution of a bay window on one side and a fireplace and window on the other in place of the great barn doors, to say nothing of an entrance porch built against one end wall, we cannot be accused of exaggeration in characterising those alterations as somewhat drastic. On the ground of common-sense, such an adaptation of an old building is, in our view, quite

defensible, but what a departure from the principles of the founders of the Society! Possibly the fact that the work was carried out "under the supervision of an architect, who is a member of the Society," may account for the Committee's report that it "has been carried out in a successful manner," but if such things may be done by a member, with the approval of the Committee of the Society, they have, obviously, no ground of complaint when drastic alterations of other ancient buildings are made by non-members.

The public spirit and pluck of the Wiltshire Archaeological and Natural History Society in accepting the responsibility of ownership for the tithe barn at Bradford-on-Avon, and so preserving it from destruction, is worthy of all praise, even that of the Society for the Protection of Ancient Buildings, but beyond the record of a shining example to other local bodies we do not see that the present Committee have much to boast about.

We must not, however, suppose the report of the Committee to be exclusively a narration of work accomplished by the Society, or even of individual members, as descriptions are given of good works performed with which, apparently, the Committee has had no other connection than the bestowal of its benediction on an adherence to the past principles or present practice of the Society.

The repair of the charming pigeon-house at Fiddington, Gloucester, is recorded by the Society as having been carried out "under the supervision of one of its architect members," and "in accordance with the Society's advice," which in this case seems to have been based on ordinary common-sense, and scarcely demanding an exhaustive application of "principles and experience" of great weight and value.

Hadleigh Guildhall, Suffolk, has been repaired, or one might in this case truly say restored, in a manner of which, knowing the building both before and after, we regret the necessity, although in the words of the report, "This case is one of those fortunate instances where the views of the Society were sought by those interested at the outset and have been throughout the progress of the work treated with sympathetic courtesy and consideration by the architect and others responsible." Much of the "history," and a good deal of the picturesqueness of the ancient fabric has gone spite of the "views of the Society"—the views of the present-day Committee are, we presume, meant, certainly not the "principles" of the founders.

Repairs to the entrance tower of Ightham Mote are described without definite expression of approval or reproof, though no doubt the former would be bestowed upon the adoption of one of the present-day fads of the Society's administrators, the use of tiles in cement as bonding courses and lintels, for both of which purposes they are inferior in practical value, though clamant of facts in "history."

Another instance of the tile fad occurs at Pawlett Church, Somerset, where "the stonework of the north chancel window was so cracked that portions had to be reformed in tile." Can inanity go further? And this in a building where "the lead covering of the nave has been recast, and out of surplus lead a gutter with heavy honey-suckle ornament has been cast from the tiny portion of the old one which remained." Surely the worst of Victorian restorers never falsified "history" more completely than the makers of this ornamented cast-lead gutter. But cast-lead ornament is in the vogue to-day, and the present Committee seem to have adopted the "view" that it is all right to "restore" old work that they admire, but heinous sin to reproduce that for which they have no sympathy. In casting overboard the "principles" of the founders, the Society is likely to make shipwreck in the quicksands of ephemeral whims and fancies which permit the inconsistency of tile crudities in stone windows and restored cast-lead ornament in the

same building. The "principles" of the founders of the Society were at least logically consistent; the "views" of the present Committee have merely substituted a predilection for eighteenth century vernacular in place of the penchant of the Victorian medievalists, and lead to quite as much falsification of "history."

The report of the Committee records several successes achieved in inducing custodians of ancient buildings to carry out work "under the auspices of the Society," "in accordance with the Society's methods," and under the supervision of its representatives or members; but, on the other hand, the Committee have had rebuffs, as in the case of Durham Cathedral, where "the Society's request"—to be allowed to interfere—"was refused." In respect of the Georgian shop in Coventry Street, London, the Society also failed to enlist the co-operation of "other London Societies with similar interests," but, shall we say, more common-sense recognition of practicability. This, however, is not wholly to their discredit. We admire a whole-hearted crusade for the protection of all ancient buildings. That is what the Society was founded for, not the carrying out of work by its members and in accordance with the "views" of the moment.

What we do regret is that, as in the case of the old house in the Bayle, Folkestone, and of the Dolphin Inn, Guildford, the Committee heard "too late" of contemplated destruction. The prime essential of the present management is thorough organisation of an efficient watch-dog service, not a "wait-and-see" attitude of expectancy for jobs to be carried out "under the auspices of the Society."

We cannot conclude without expressing our admiration for the beautiful illustrations of many charming old buildings included in the report.

### NOTES AND COMMENTS.

As Scotland contains by far the greatest acreage of land in Great Britain suitable for the growth of coniferous trees, it is fitting that the Scottish members of Parliament should be induced to urge upon the Government the importance of afforestation, the more so as it is the existing standing timber of that part of the kingdom which is more particularly being drastically cut down to meet the imperative demands for purposes connected with the war. These considerations are sufficient justification for the deputation from the Royal Scottish Arboricultural Society to the Scottish members advocating the creation of a separate Department of Forestry for Scotland in connection with the Scottish Board of Agriculture.

The deputation consisted of Sir Andrew Agnew, President of the Society; Sir John Stirling Maxwell, hon. secretary; Lord Lovat and Colonel Stuart of Fotheringham, members of the Council; and Mr. R. Galloway, S.S.C., secretary and treasurer.

Sir Andrew Agnew submitted the following resolution, which had been passed by the Royal Scottish Arboricultural Society: "That it is necessary, in order to provide for the nation's future requirements of coniferous timber and such hardwood timber as can be economically grown in this country, and also to afford suitable and healthy employment for a large and ever-increasing rural population, that the Government should now create the promised Department of Forestry in connection with the Board of Agriculture for the development of forestry in Scotland, with an adequate annual grant for the purpose, and should instruct the Department to prepare without delay schemes of afforestation combined with small holdings and other rural industries, to be put into operation as soon as the war is over, so that advantage may be taken of the unique opportunity when returning soldiers, sailors, and others are desiring work to induce a proportion of them to settle on the land by offering them immediate and suitable employment in comfortable and congenial surroundings."

He expressed the hope that the Scottish members would be able to bring this matter before the House of

Commons in the present session with the view of obtaining some assurance from the Government with regard to it. They were forced to the conclusion that no real progress in afforestation could be made in Scotland without a special Department, whose duty it should be to attend to the subject, and that Department should be provided with a special fund to enable it to carry out its objects. He had just had an interview with the Secretary for Scotland, and he (Mr. McKinnon Wood) assured him that the Government were fully alive to the urgency of the question of afforestation, and had made up their minds to deal with it. The Government were appointing a Committee, which was to inquire as soon as possible into the whole question throughout the country, and he hoped the Committee would not take long in its deliberations, and would propose some practical scheme. He (Sir A. Agnew) emphasised the point that the great anxiety of his Society was to have a separate Department, but the Secretary for Scotland said that something larger must be done, and that some big practical proposal would be made which would do away with the necessity for the appointment of a Department of the kind suggested. This was a matter on which they would like to have an assurance from the Government in the House of Commons.

Lord Lovat put forward the social argument for afforestation, and particularly emphasised as of urgent importance three points: (1) The necessity for a separate Department; (2) a survey in which they might be able to know the exact number of acres suitable for planting in Scotland; and (3) a detailed survey of the most suitable places for afforestation. He wished to deal with the Highlands. There he hoped that the State would come forward and take a position in the afforestation of Scotland similar to what had been done by the State in other nations. The driving power of forestry which would make an appeal to the people of the country was that it was the cheapest way of settling more people on the land. It was the cheapest way, because every single individual whom they would put down in connection with afforestation in these glens of the Highlands would be a definite addition to the population, and no one would be displaced. By forestry they would get one man set on the land immediately for every hundred acres planted, and after a short time they would get one man settled on every 25 or 50 acres. They could purchase suitable land in places on the West Coast at from £2 to £3 an acre, and they could plant it from £3 to £5 an acre, and they thus would get an individual settled on the soil at an original capital expenditure of something like £1,000. The land suitable for afforestation in the Highlands had been placed as high as 4,000,000 acres. He did not think it was as much, but it was certainly not less than 2,000,000 acres, on which it would be possible to put men down in the proportion of one man to every 100 acres. There was no industry which worked so well as forestry in connection with small holdings. The seasonal labour of agriculture and forestry fitted well in, and he thought a fine healthy life would be opened up to men engaged in this employment.

Sir John Stirling Maxwell dealt with the subject from the economic standpoint, and expressed the view that, although the social side was likely to be the driving power in the movement for afforestation, it had another side, the purely business side. This country really stood in need of large supplies of timber of its own. It had been argued that the supplies of timber were becoming more precarious because the world's supplies were becoming exhausted. These prophecies, made 40 years ago, had come absolutely true. Taking soft wood, such as coniferous trees, which they were able to produce in Scotland, and of which the country imported in the largest quantity, the price had risen between 1895 and 1913 by as much as 33 per cent., and the sources from which that soft timber had come had gone through a very remarkable change. We were more dependent than ever on foreign countries. It might be well if the House of Commons was to get some estimate formed of what the



result to the country had been by not having adequate timber supplies of its own during the time of the war. On this point there was ample argument to support the contention which the deputation was now bringing before the Scotch members.

The quarterly meeting of the Dublin Corporation last week was marked by some straight speaking by the Lord Mayor and other members on the "injustice" of the action or inaction of the Government with regard to the rebuilding of Dublin's ruined area and the compensation to the citizens for their losses. On the motion of Councillor Sherlock, seconded by Alderman O'Neill, it was agreed that a deputation be appointed, consisting of the Lord Mayor, the Town Clerk, the City Treasurer, and such other members of the Corporation as were willing to travel at their own expense, to wait upon the Prime Minister. Accordingly the Prime Minister received a deputation, backed by the influence of Mr. Redmond, and consisting of the Lord Mayor, the Town Clerk, the City Architect, Sir Patrick Shortall, Alderman Moran, Councillor John Ryan, and Mr. J. A. Ronayne, barrister-at-law.

Mr. Redmond introduced the deputation and explained its purpose, which was to press on the Government the immediate necessity for a Government loan in addition to the powers at present proposed to be given to the Corporation. On behalf of himself and of his colleagues he stated that the request of the Corporation had their enthusiastic support.

The Lord Mayor explained in detail the case of the deputation. The Lord Mayor appealed to Mr. Asquith for a handsome and generous treatment for Ireland in this matter.

Mr. Asquith, in reply, expressed his complete sympathy with the citizens of Dublin in their present unhappy position. He admitted that the position was quite different from that of any other municipality in the United Kingdom at the moment. The Government only wished to deal with the matter in a way that was equitable and expedient. He expressed his surprise that the Municipal Council were thrown back upon such meagre powers under the existing law. He considered that there should be wider powers to meet the present situation, and stated that the proposed Bill would give them such powers. Some difficulties would have to be overcome in the financial arrangements. During the war there was an artificial enhancement of the cost of both materials and labour. The Corporation should carefully consider that aspect. Then there was the question of the amount required. In a great crisis such as the present the interest of the State was paramount. Any laxity or even undue generosity at such a time would be unpardonable. Moreover, the greatest care would have to be exercised to guard against the exploitation of the public interest by individuals in the disposition of the money. He asked the deputation to arrange on their return to Dublin that the Corporation should consult with the Local Government Board and arrange a scheme under which the amount required would be accurately ascertained, and provision made to guard against any sacrifice of the public interest to the benefit of individuals. When such a scheme was submitted he promised on behalf of the Government that it would receive favourable consideration.

In a letter to the "Glasgow Herald" a correspondent directs attention to some little known private residences by Robert Adam in the neighbourhood of that city. Craig Barnet, nestling at the foot of the Campsie, is one. It is endowed with characteristic ceilings and architraves, but in a spirit of disordered and rampant vandalism a former incumbent ejected and destroyed most of the original chimney-pieces and substituted others in an effort to reconcile the mansion with a period of extreme decorative decadence, over which Morris wept. Then there is Culzean Castle, situated in a district that would inspire Adam, with its finely proportioned circle

drawing-room—an unusual plan for a room, adopted successfully by Sir John Burnet in the board-room for the Clyde Navigation Trust—with unrivalled outlook on the Firth of Clyde. Other examples of Adam's ceaseless decorative activity are hereabout, notably at Montgreenan, the Ayrshire seat of Sir James Bell, Bart., where in the drawing-room there are two finely chiselled mantelpieces with figures and flutings in the master's inimitable style.

Amongst the Civil List pensions granted during the year ended March 31, 1916, occurs the name of Dr. Thomas Ross, the joint author with Mr. D. MacGibbon of "The Castellated and Domestic Architecture of Scotland" and "The Ecclesiastical Architecture of Scotland."

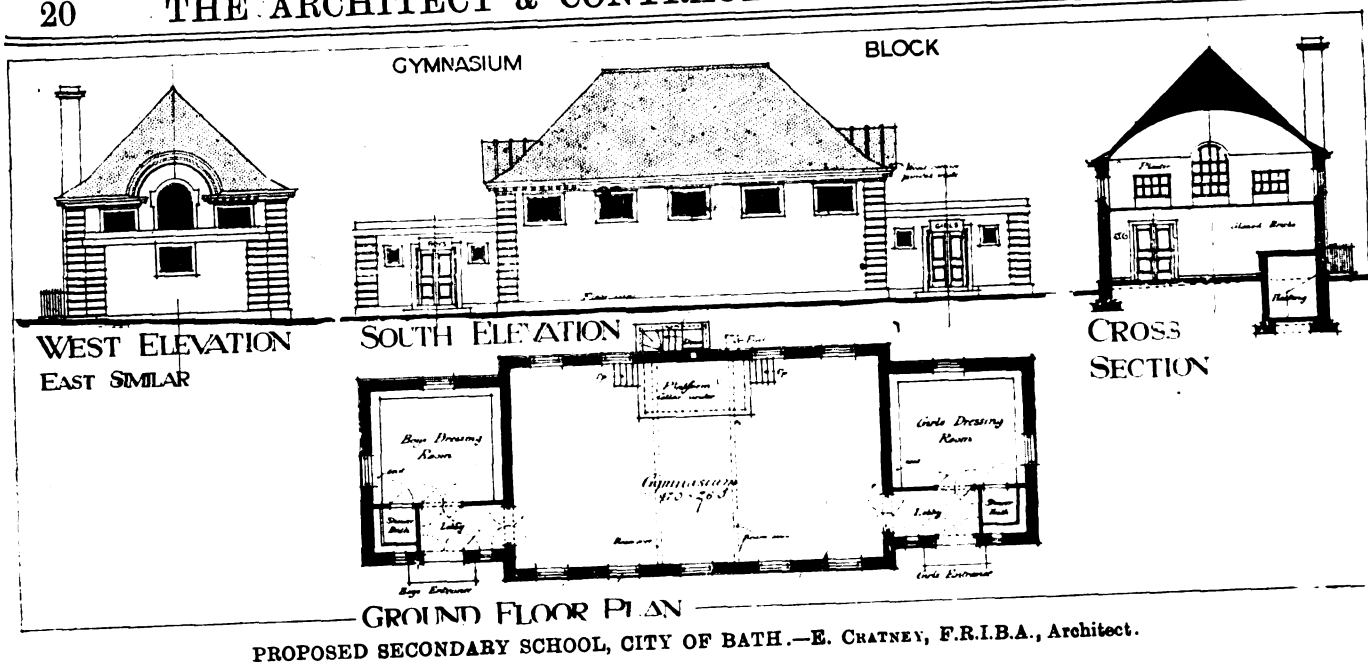
Two important works by Ford Madox Brown have been presented to the Birmingham Art Gallery, and will form a valuable addition to the Pre-Raphaelite collection. The "English Autumn Afternoon," Madox Brown's most famous landscape, was begun in September 1852 from the artist's "back window" at Hampstead. In the painter's own words, "It is a literal transcript of the scenery round London as looked at from Hampstead. The smoke is seen rising half-way above the fantastic-shaped, small, distant cumuli which accompany particularly fine weather. The upper portion of the sky would be blue, as seen reflected in the youth's hat, the gray mist of autumn only rising a certain height. The time is 3 P.M., when late in October the shadows already lie long and the sun's rays (coming from behind us in the work) are preternaturally glowing, as in rivalry of the foliage." The other picture is the "Death of Sir Tristram," for which a water-colour sketch was made in 1863. It is one of the series of designs for stained glass depicting the story of Tristram and La Belle Iseult, as told in Mallory's "Morte d'Arthur," for which other designs of the set were made by Burne-Jones and Arthur Hughes, four of which are already in the possession of the Birmingham Art Gallery.

The Welsh historical sculpture presented by Baron Rhondda of Llanwern to the city of Cardiff is now on view at the Grafton Gallery, Grafton Street. A selection of ten historic characters was made by the whole Principality, and finally a slight revision brought into the list a group of Boadicea, the British Queen. Lord Rhondda's gift was gratefully accepted by Cardiff City Council, and in the development of the scheme his Lordship was assisted by a local committee. Mr. Havard Thomas, the well-known sculptor, was appointed assessor in July 1913, and commissions for the statues were apportioned, not more than one work to be done by any one sculptor.

The Session 1915-16 in the School of Architecture at University College was brought to a close on Thursday of last week. Architecture certificates have been awarded to Mr. I. Reicher, Miss Charlotte C. Nauheim, and Mr. J. A. Calderon.

We regret to learn that some changes are contemplated next session in the School of Architecture. Professor Simpson, who has borne the burden and heat of the day in the work of reconstructing and re-organising that School, and who has also had great responsibilities put upon him in connection with the building developments here, has asked to be freed during next session from some of his duties. The College Committee, advised by the Architectural Education Committee, have given him the power to delegate some of his work, including the general duties of organisation and administration, to the Assistant Professor, Lieut. Wilkinson. Lieut. Wilkinson has been long enough among us for it to be recognised that this delegation will not in any way injure the efficiency of the School. Professor Simpson will continue, as usual, his courses on "The History of Architectural Development," and will give some public lectures in the early part of the session.





## ILLUSTRATIONS.

### PROPOSED SECONDARY SCHOOL, CITY OF BATH.

THE design we illustrate was submitted in competition by Mr. Edward Cratney, F.R.I.B.A., and was commended by the assessor, Mr. Henry T. Hare, F.R.I.B.A., so that although not selected, it is worthy of study by those interested in modern school planning.

### DUICAL PALACE, MANTUA.

WE illustrate further views of details from this Home of the Renaissance, which was described in the article by Professor Alfredo Melani which appeared last week.

## BRICKS.

### CHAPTER II.

#### STRUCTURAL FEATURES AND DISINTEGRATION.

*Written and illustrated by James Scott.*

THE brickmaker digs his clay preferably in the autumn, and allows it to remain exposed to the weather until the following spring. It is then moistened and well worked with the spade, i.e., tempered, and afterwards conveyed to the pug-mill, where it is operated upon by knives and eventually becomes a thick, doughy mass.

For hand-made bricks the clay is pressed into a wooden or metal mould slightly larger than the brick will be, consisting of four sides like a bottomless and lidless box, and is then rapidly scraped level with a straight edge. For slop moulding water is sprinkled over the table and the mould, for sand moulding sand is instead scattered over those parts.

Another method is to feed the dry clay into the pug-mill, where it is squeezed by means of knife-blades into moulds on a revolving table. Steam pressure then forces the bricks up free ready for baking.

The moulding of the clay may be done by machinery under pressure. It is passed between rollers, and then issues in a dense stream through a die of the standard thickness, being cut meantime with a wire into separate bricks.

In the most primitive kind of baking the soft bricks are placed in heaps eight courses high, known as "hacks," in such a way that air can circulate all round them, and they are left thus for six or eight days. They are then so arranged that layers of cinders, called "breeze," one to two inches thick, are disposed of between and about them, and the whole "clump" is plastered over with clay, through which holes are pierced

to serve as flues. Wood and coals or mere rubbish may be filled into the spaces underneath the covering. The material is then ignited, and when the fire is burning briskly the holes are blocked up and the bricks allowed to burn for twenty to forty days before the pile is broken open and the bricks removed.

In kiln firing only about forty-eight hours are needed to render the bricks suitable for their purpose. When bricks have been properly prepared and baked they are called stocks; if overdone, burns or clinkers; and underdone, placers.

The work of the bricklayer is more skilful than is generally supposed. He must have a very "straight" eye and careful hands, for although he uses the plumb the walls would be awry unless great trouble was also taken. If the ends and sides of the bricks are not placed perfectly vertical with one another the joints and angles will be false. He must keep the "perpends," as they say.

The English brick is nine inches long, four and a half inches wide, and two and a half inches deep, so that a 9-in. wall is one brick thick, a 14-in. wall one and a half bricks thick, and an 18-in. wall two bricks thick.

They need to be slid, while damp, into the mortar bed prepared for them so that the surface pores shall be filled up as completely as possible.

Bricks laid side-faced are called stretchers, and those laid end-faced are known as headers. The various bonds, of which there are three distinct kinds, depend on the arrangement of the courses. In the English bond there are alternating layers of stretchers and headers. In the Flemish bond stretchers and headers alternate in the same layers. In the Scotch bond rows of headers occur at every fourth or fifth stretcher layer.

The best made walls are those in which the mortar has been "struck," or scraped in such a way that rain-water will slide off it, instead of being trimmed level with the faces of the bricks.

Hollow walls may be filled or empty. In one case there are two "skins," or unconnected walls, separated from one another by a uniform space. This may be filled in by laying mortared bricks slantways in herring-bone or raking courses, the process being called "shoving." Otherwise the intervening space may be "grouted," or filled with dry bricks over which mortar is poured so that it may flow into all the available crevices. When such spaces are left free bands of hoop-iron or other ties are made to connect the wall "skins" together. The metal is usually fixed bent to prevent moisture from remaining upon it where it unites with the bricks. A great deal of damage is, however, caused by this particular style of formation as the locked up air is very favourable to the growth of earth fungi and kindred

vegetation. These may force their way to the outer faces of the walls. Reverting for awhile to the bricks themselves I must refer readers to fig. 4, in which is depicted a view of a fair quality of yellow specimens, the details of which will afford us an insight into the general structure of such goods. It must be remembered that the baking clay contains moisture and ingredients of different melting or fusing points. At first the whole mass is consolidated together and without internal spaces. Heat first drives the moisture out, and as it passes from the innermost portions it collects into separated steam globules which burst from the surface and leave it perforated with tiny holes. Its release also produces internal canals. Then gases follow and operate on the looser particles, distributing them along the narrow tunnels. The softer ingredients melt and wrap up the harder ones and help to fill many of the small spaces, and then the more resistant portions fracture and get scattered among the remainder. There is a continual bubbling on a very minute scale, and consequent blistering. Globules of one element run into or over similarly shaped parts of others, and when the final settling down process ensues owing to cooling some of the substances

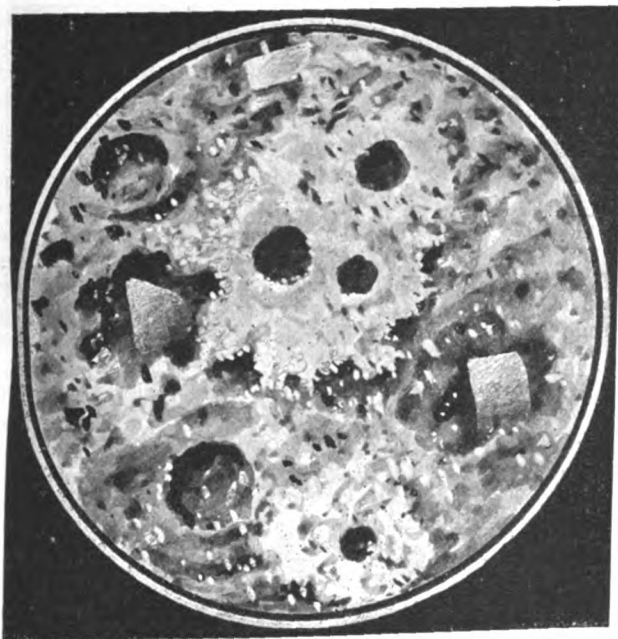


FIG. 4.—The appearance of the fairly smooth surface of a yellow brick, as seen through a pinhole, greatly magnified.

contract and crystallise within the pores as brilliant glassy objects, held so tightly in position that they cannot be moved.

Glazed bricks are naturally more durable than the ordinary kinds which expose their naked, porous surfaces, but there is a phase of the subject little thought of in this connection. The extremes of heat and cold affect most building materials, and in the case of bricks contraction and expansion occur within limits during the broiling summer sunshine and the freezing periods of winter. Unless the glaze is of such a character that it will respond to the varying changes of temperature to the same extent as the baked clay it is liable to crack and chip off. However, even these defects are not so serious as those possible to completely exposed bricks.

The actual constituents of glazes vary according to the experience and preference of the manufacturers, but as a rule the following are the chief items mixed in various combinations: red lead, litharge, stannic oxide, sand, soda, borax, lime, Cornwall stone, felspar, flint, and barytes. These (whatever are chosen) are finely powdered and mixed with water to make "slips" or pastes, which are spread over the faces of the bricks, allowed to dry thoroughly, and upon rebaking fuse into glazes which automatically adhere into position. A glaze is practically a glass, and to prevent it

having a transparency the use of salt is often resorted to, hence the term salt glazing. For this purpose common salt, i.e., sodium chloride, is thrown into the fire, and decomposes into its original constituents, chlorine (which changes to hydrochloric acid) and soda. The latter combines with the glaze, and renders it opaque white.

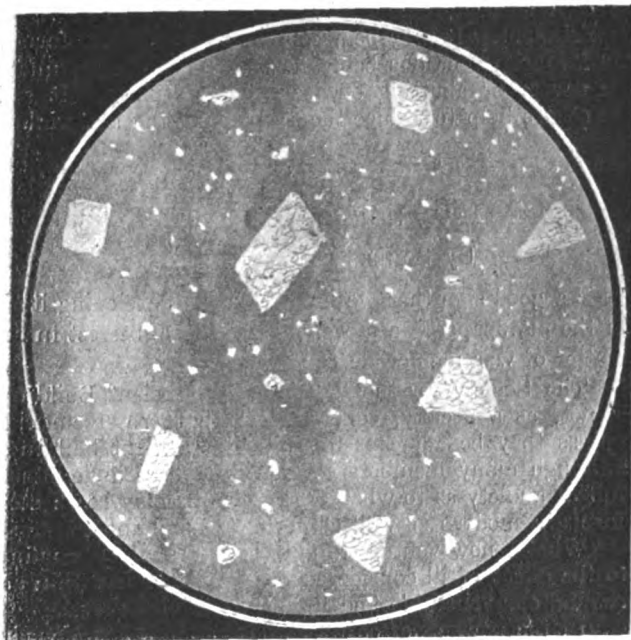


FIG. 5.—A surface view of a white-glazed brick, as seen through a pinhole, greatly magnified.

In fig. 5 is shown the magnified surface of a white glazed brick. The crystals are embedded in the glassy matter, and are just a trifle whiter than the facing. One has to focus a brilliant light upon the piece of brick, and hold it at a suitable angle to be able to see the objects clearly. They are probably similar to those already existing before the glaze is applied, the granules surrounding them being levelled down by the process.

Among the many influences which cause the

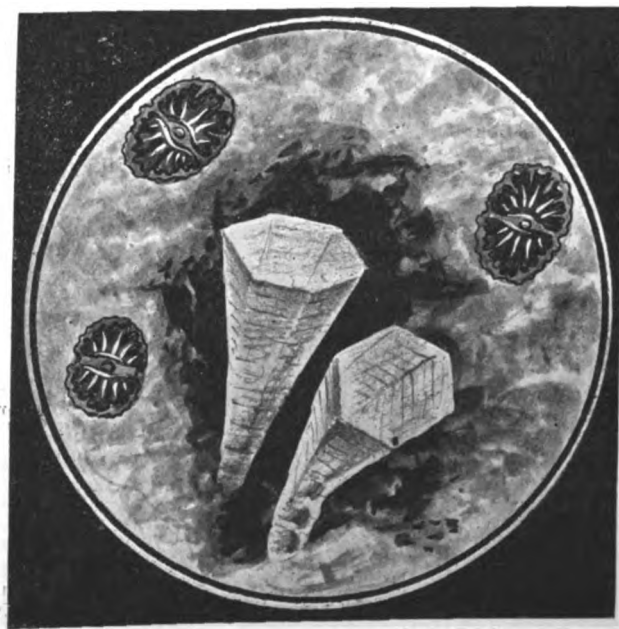


FIG. 6.—Crystals of hoar frost in a pore of a worn brick, and three desmids on its face, known as microsterias, as seen through a pinhole, greatly magnified.

deterioration of naked bricks are frost, algæ (of which desmids are a section), fungi, lichens, and chemical fumes. In fig. 6 are depicted examples of the first and second agencies. Hoar frost begins by the solidification

of drops of dew on one another, the later ones spreading and flattening into hexagonal slab crystals, which are generally minute. But the slightest warmth, from the breath for instance, will thaw them so that they run together into fantastic feathery and leafy filigree. When they fill the pores their expansion from the watery state fractures the brick. The alga or desmid shown as found subsists on the more soluble mineral matter which its own absorption and growth renders fit to serve as nourishment. It may be accompanied by simpler forms, the favourite positions being near the ground line, under the eaves, or abutting on leaks in wall-pipes. It and the others help to reduce the strength of the material.

### WAR MEMORIALS.\*

By SOMERS CLARKE, F.S.A.

It is a good sign that we may observe—developing itself in the newspapers—a movement of public interest in the matter of war memorials.

The Society for the Protection of Ancient Buildings is not, as a society, concerned with these memorials unless they be adjacent to or within ancient buildings, although many members of the Society are undoubtedly full of anxiety as to what form of terror may be in store for us in modern as well as in ancient buildings.

What I now venture to put forward shall be confined to the effect of ill-considered memorials both within and around our venerable and beautiful old churches.

In the newspaper correspondence above-mentioned it may be observed that in no case has the writer, be he artist or layman, referred to the subject of the congruity of the memorial with its surroundings, and yet the importance of this congruity can hardly be over-estimated.

To take as an instance a piece of sculpture. A memorial, effective in itself, may be rendered altogether a failure by the want of foresight and sympathy with its setting displayed by the sculptor who has designed it.

One example is worth pages of writing. I will, as a specimen of hopeless incongruity, refer to the Tennyson memorial outside the east end of Lincoln Minster: entirely out of scale with the great building before which it stands, it dwarfs and yet is dwarfed by it.

Unless I am misinformed, the statue and pedestal which constitute the memorial were not even designed to stand where they do. Probably the sculptor worked away after the customary manner without a thought as to the ultimate destination of his work. One does not know where to lay the blame. It is, unfortunately, in England a common thing for sculptors to be invited to send in their schemes when the situation of the memorial has not yet been decided upon. I have known self-respecting sculptors refuse to compete under such conditions. All honour to them.

Cases are not unknown of extreme laxity on the part of the sculptor as regards a memorial to be placed inside a building. How seldom does the artist think of anything but the effect he is producing inside his studio? The members of the committee are gathered into the studio to see the work, to pronounce an opinion. A strange place is this studio to them, and barn-like in their eyes, utterly unlike in its lighting or effect the cathedral or church which is to house the memorial. The members observe how truthfully the boots are reproduced, but cannot quite agree as to the likeness in the countenance of the deceased. By deft pulling about of blinds and a little juggling with top light, the committee is mystified. Of course, in the church are no such blinds and top lights: very possibly the site selected in the building has a considerable window just behind the memorial. The sculptor has paid no consideration to this fact, has never

tried the whole, or even part, of his work in the building itself.

In the end the memorial declares itself to be as it really is, a mere intrusion.

All parties are disappointed, as indeed they ought to be. I may be permitted to add that the above is not an imaginary case. It has come within my small experience more than once.

To return to the outside of the building. In how many cases do we observe that surrounding a modest and venerable country church the churchyard has been planted with a crop of tall crosses of white marble? Not infrequently the top of some of these crosses will rise even above the eaves of the aisle roofs. When these chilly white memorials have increased in numbers what was once a calm and picturesque churchyard takes on the aspect, from a short distance, of the drying ground of a laundry.

The old-fashioned head-stone, so unassertive, becomes pleasantly toned by the finger of time; the solid grave-stone with the cross recumbent on it is not only incapable of producing the unquiet effect of the marble cross upstanding, but is really lasting, which the crosses are not.

It cannot be too strongly insisted upon that white marble, especially the cold hard blue-tinted stuff made use of by the tombstone masons, is not only in fact but also in effect completely foreign to our climate and country. The finger of time can never make this material harmonise with the surroundings into which we thrust it.

As regards the memorials set up inside our ancient churches, how commonly we find them to be as intrusive as they are inharmonious.

The white marble now so generally in use can under no circumstances and in no lapse of time come into harmony with the somewhat warm tints of plaster and stone which form the internal surfaces of our ancient churches.

There exist materials which will readily harmonise, as, for example, Hopton Wood-stone with a fine close texture of marble but of a pleasant warm tint; or Blue Pennant; or even the softer tones of Siena marble if only the material be not brought to a high polish. A surface that reflects light is almost certainly an offence—granites are always to be avoided. Then there is that most obnoxious thing, the modern brass.

Of old, brasses lay on the floor, the metal was inlaid on a slab of dark marble, where it might be had, or of stone. Being often trodden by the feet of the worshippers the surfaces of brass and marble were rubbed, were smooth, but never polished.

Nowadays the brass is an ugly plate nailed upon or even sunk into the ancient wall. Burnished to a high degree, it reflects lights in a way not only disagreeable in itself, but often in such a manner as to render the inscription illegible.

The nave of Winchester Cathedral—to give an example—is sadly defaced by some particularly unfortunate specimens of this type of brass. It may be remembered that in this cathedral the aisle walls below the windows are panelled in a manner to carry on the vertical and horizontal lines of the window tracery above. A fine opportunity this for the maker of brass plates to show his want of taste. Where we expect to see the reposeful surface of solid stone we find a shining and glaring slab of brass fitting into the tracery. The effect of continuity of wall surfaces is quite lost. In Exeter Cathedral we see similar blotches and incongruities with bronze soldiers in low relief on a white marble field. Harsh and assertive is the result, reminding us of black paper silhouettes.

And who are worse offenders in memorials than the manufacturers of stained glass?

An interior, provided by our forefathers with ample light, is turned into a gloomy cave by the perpetrators of the monstrosities which are set up in many an ancient church without the smallest regard to the effect in the building, the convenience of the worshippers, or the

\* An Introduction to the Thirty-Ninth Annual Report of the Committee of the Society for the Protection of Ancient Buildings.

great expense to which people are put by the perpetual need of artificial light on the brightest day. Our forefathers did not set up opaque windows smeared with incrustations to represent a sham antiquity.

It is well to give an example, accessible to all men, of one of our noblest buildings thus defaced and obscured by the glassmakers—Westminster Abbey. Let the reader see for himself what has been done here, and now happily being, some of them, removed.

## THE WAR AFTER THE WAR.

By ARTHUR VYE-PARMINTER.

"QUAND le Bâtiment va, tout va!" a French expression, meaning that when the building business is booming every business is going well. This, in any case, applies to France.

Now that the Allied Economic Conferences are being held, does it not seem to be the right time to seriously consider the question of the adoption of the Metric System for weights, measures, and coinage?

As expressed by the above saying the building business is the most important of all for the general community, for when building work is going on well, money is good, and all trades are influenced by it for the production of materials necessary for building and housing, from the constructional materials themselves, to the materials necessary for the internal arrangements and furnishing, and for the comforts or luxuries of the tenants.

It would, therefore, seem that a very powerful influence could be brought on the question of the immediate adoption of the Metric System by architects, builders, engineers, and all tradesmen and business men connected with building work.

Everyone in Great Britain has heard of this system, which has often been talked about and its adoption discussed, but how few have taken the trouble to study its advantages and its simplicity, and really try to realise what its adoption would mean in the saving of work, time, trouble and tedious calculations. How simple and easy it all is, and how many months of weary worry could be saved our children if they had only to learn the Metric System instead of the complicated tables of our antiquated system of weights and measures.

If we intend to capture enemy trade after the war, we shall have to work very hard, we shall have to adapt ourselves more to our Allies' customs, and be also able to forestall enemy wiles, we shall all have to be in the fighting line, we shall have no time to waste on old fashioned calculations.

I do not think unless we change many of our methods that we shall capture as much of the enemy trade as we at present think we ought to. We do not take sufficient trouble individually and collectively to go into details, our insular sureness is instilled in us, and we prefer to take less trouble ourselves and let our foreign business friends take the trouble to make out what we mean. We have not taken much trouble to learn the languages, and less trouble to study our friends' methods, studies which would help us all very much. "We cannot spare the time or take the trouble; if they want the business or the goods let them work it out."

Now that our architects, builders, surveyors, and merchants are all eagerly hoping to have a large share in the business or the work of remaking and reconstructing portions of France and larger portions of Belgium—and some, I believe, are now busily learning French with this view in end—should we omit the study of the Metric System, the Metric language, which, however well we may know how to talk in French, will, if we are ignorant of it, keep us as far apart as before in many ways?

To the French architect, builder, surveyor, and merchant can there appear anything more clumsy and illogical than some of our sets of building drawings, our plans of property or ground, our bills of quantities, and our quota-

tions and inquiries? Our drawings figured in with feet, inches, and fractions of inches, with total dimensions got at with much comparative labour, unnecessary calculations, and waste of time. Or the drawings may simply be marked as being drawn to some fraction of an inch scale. The French builder would compare these with the drawings given him by the French architect, clearly figured on the Metric System in the tenth of the time taken to figure the English drawings. His drawings will allow him to figure up the digging, concrete, masonry, &c., and the materials he will require almost without putting pencil to paper if he wants to approximate.

The French surveyor would wonder if he had come across a plan from the Middle Ages if he set eyes on an English property plan, figured and surfaces in acres, poles, roods, yards, &c., with no possibility of calculating portions or totals without some intricate reductions and multiplications.

The builders' merchant would be lost if he had to calculate and price on fractions of tons, hundredweights, rods, cubic yards, &c.; and the water engineer and plumber would go crazy over gallons, quarts, and pints, when by their own simple system they can calculate at sight, knowing the weight and contents of a cubic metre of water.

The Parisian quantity surveyor would look aghast at an English bill of quantities, composed of many pages of a nightmare of varied dimensions, weights and measures, to be multiplied by pounds, shillings, and fractions of pence.

To one who has gone through his architectural training in England and since taken up his profession in France, the old system, when it comes under his eyes again, makes him wonder each time why all this complication still exists. To him, as to his French confrères, the property plan, the drawings, the details, the quantities, and the builder's prices, all different in figures and only to be compared one with another after multiple calculations, show waste of valuable time to everyone concerned. I have often seen drawings, details, and quantities sent from England to Parisian builders to estimate from, and have admired their patience in their endeavours to make all agree and to transform the lot to their own simple system.

How much more simple and logical, and what gain in time would it be for the architect to figure in his drawings on the Metric System, using centre lines and datum lines to make the drawings clear and easy to use. What a saving in time to the builder to be able to calculate up his materials in a few minutes; to the land surveyor and agent to have his plans on a metrical basis; to the water engineer and plumber who, knowing the weight and contents of a metre of water and its ratio to other materials, can instantly calculate capacities of reservoirs, tanks, and their weight when full. The English architect, builder, surveyor, and clerk of works have all to use several sets of scales, lose time in searching for the one they require, and then not be quite sure that they are using the right side of the special scale or not. One scale, or the ordinary metre rule, is all that is required in the Metric System, and how many errors are avoided and time gained, when instead of taking the drawings by scale, they are metrically dimensioned and perfectly clear.

The quantity surveyor alone might not like the idea of the change, for his work would be decreased enormously, and perhaps his fees therefor.

To win the war after the war we must at once adopt the Metric System; we shall require all our time in the battle and not be able to waste it on old fashioned methods and calculations, and we cannot expect our Allies in this war of commerce, whose time will be as precious as our own, to take the trouble to transform our drawings, inquiries, and quotations.

For the engineer, too, the time has come for the adoption of the Metric System entirely, its measures and standards, and its facilities. Now that most of our engineering works are employed in the manufacture of



munitions practically on a metric basis, when a large proportion of our pre-war tools and machinery will have to be renewed, shall we revert to the old system? Apart from tools and machines, our steel sections, our bolts and rivets, &c., agree nearly but not sufficiently with the French standard sections, and the French engineer, if he wishes to employ our steel and accessories for his construction or building work, is obliged to adapt his work and machines, and his calculations of strains, &c., from our fractions of inch sections and diameters to his constants of millimetres or centimetres.

It is up to the building trades to remedy all this. "Quand le Bâtiment va, tout va!"

### THE OPEN SPACES OF LONDON—PAST, PRESENT, AND FUTURE.\*

By LAWRENCE CHUBB.

(Continued from last week.)

In order to appreciate the complexity of the interests involved and the greatness of the public victory it is necessary to consider the steps leading to the protection of the commons which form three-fifths of all our Metropolitan open spaces.

The value of commons is not to be measured only by their area. They possess a peculiar value for their beauty is natural; in spring on their broad bosoms wild flowers grow which little children may gather with impunity. In autumn they are the happy hunting ground of the blackberry picker, and on a common the child and the man experience a feeling of lack of restraint which is necessarily absent from the more austere and formal charms of our parks where no child would dream of plucking a flower.

The word "common" appears to connote a mutual interest in civic possessions, but, in a strictly legal sense, an ordinary common is not public property, but a tract of private land belonging in general to a person known as the lord of the manor, but over which other persons, known as commoners, are entitled to exercise certain definite rights. These rights are known as rights of common, and it is only while they endure that the land remains a common. If they can be extinguished by fair means or foul, the lord of the manor can appropriate the common; but so long as they are in existence the land must, as a rule, remain unfenced. Such rights almost always embrace a right to turn out horses, cattle, and sheep upon the common. Often, too, commoners are entitled to cut undergrowth for fuel or litter; less frequently they can cut wood for repairs, or dig gravel, peat, or stone.

The fight for Metropolitan commons has been the struggle with lords of manors who sought to extinguish or override these rights.

The most popular form of attack, after the reign of Queen Anne, was for the lord of the manor to apply to Parliament for power to effect by Inclosure Act the partition of the commons in a particular parish or manor. This enabled him to ignore the opposition of the commoners, who were too poor or too disorganised to make their voices heard before a Parliamentary Committee sitting in London.

In many cases, no doubt, Inclosure Acts of this kind were an advantage when they led to the more profitable use of cultivable land, subject to the exercise of common rights only during the winter months. But unfortunately, as history shows, the enclosure of commons was often followed by disastrous effects. This was particularly the case when the common enclosed had previously enabled small farmers and villagers to maintain stock when their land was under crop.

When the common was partitioned and their own small holdings were being cultivated the yeoman of this

class had nowhere to pasture his animals, which had to be sacrificed. With the loss of the income sheep and cattle had brought the holdings became unprofitable, and gradually drifted into the hands of mortgagees or the larger landlords.

Between 1710 and 1869 no fewer than 4,719 Inclosure Acts were passed, and it is estimated that by their means over 5,000,000 acres of common lands were divided.

The Metropolis naturally suffered, for no fewer than 281 Acts were passed for the Home Counties, involving the enclosure of 219,724 acres of open land. Included in this were numerous commons in the heart of London, parts of which we have since had to buy back as open spaces at a heavy cost.

In about the year 1860 there arose a movement of hostility to Inclosure Acts. It had at last come to be recognised that in and about towns it was imperatively necessary that the health, recreation, and comfort of the inhabitants should receive consideration, and the passage of Bills contemplating the enclosure of Metropolitan commons was opposed. This led up to the appointment in 1865 of a Select Committee "to inquire into the best means of preserving for the public use the forests, commons, and open spaces in and around the Metropolis."

This Committee promptly reported, *inter alia*, that "there is no open space within fifteen miles of London which can be spared, or which should be reduced in area." A proposal of the Metropolitan Board of Works that all London commons should be bought up as open spaces, at an estimated cost of £6,000,000, was wisely rejected, and it was suggested that, as an alternative to the enclosure of commons, such lands should be regulated or placed under the management of local authorities, without prejudice to the legal interests involved.

In the meantime lords of manors had discovered that the Statute of Merton was still the law of the land. This Act, passed by the barons in the year 1235, allowed the lord of the manor to enclose the "wastes" or common lands of his manor, provided he left sufficient to supply the needs of the freehold commoners. The injustice of this statute is apparent when it is remembered that the freehold tenants of a manor are a small class in almost all manors, and are not to be found at all in numerous cases, and that the statute completely ignored the rights and interests of the copyholders and humble villeins who formed the bulk of the commoners, and whose ancient customs and privileges were ruthlessly overridden.

It was this archaic measure that formed the gravest danger of Metropolitan commons, and, thwarted by Parliament of the power of Inclosure Acts, lords of the manor on every side of London commenced to fence in the commons, relying upon the ancient Statute of Merton to justify their high-handed action.

To meet this danger the Commons and Footpaths Preservation Society was founded in 1865, at the instance of Lord Eversley, its President, and its history is a record of triumphant success achieved under his direction and that of its legal advisers. London will, undoubtedly, come to realise in the future its immense debt to Lord Eversley for his pertinacious courage in defending her interests in her hereditary open spaces.

The Society determined to challenge the legality of the most glaring enclosures, and a series of dramatic law-suits resulted. In the meantime the pressure of its supporters in Parliament led to the passage of the Metropolitan Commons Act in 1866. This rendered illegal the enclosure of commons within the Metropolitan Police District, and set up the regulating machinery recommended by the Select Committee in the preceding year.

Hampstead Heath formed the subject of the first fight. This fine and breezy open space had survived many attempts at enclosure, although the lord of the manor, Sir Thomas Marvon Wilson, asserted before the Select Committee in 1865 his "absolute interest in the land, free from any common or other rights, and his intention

\* A lantern lecture delivered before the London Society in the Hall of the Royal Society of Arts, Adelphi, W.C.

to make what use of it he could by leasing it for building purposes."

He commenced to erect houses on the most conspicuous part of the Heath, only to find his action challenged by one of the commoners, Mr. Gurney Hoare, with the backing of the Commons and Footpaths Preservation Society. Sir Thomas died before the litigation terminated, and his successor announced that he did not intend to proceed with the buildings upon the Heath. As an alternative, he parted with his manorial rights to the Metropolitan Board of Works for the sum of £45,000. The Heath was then 268 acres in extent. It was increased in 1889 by the notable addition of Parliament Hill Fields, purchased for the great sum of £300,000. In 1898 it was further enriched by the addition of Golder's Hill, and in 1907 it was raised to its present area—667 acres—by the acquisition of eighty acres of land, around which the Hampstead Garden City has sprung into existence.

Ken Wood, which adjoins the Heath, is indispensable to the full enjoyment of the existing open space. It is greatly to be hoped that at some future time the frontages of this wonderfully picturesque site may be added to the Heath.

The next fight concerned Berkhamsted Common, which lies outside the area of the Metropolis, but which attracted enormous attention. Lord Brownlow had enclosed 434 acres of the Common, but in 1866 the two miles of high iron fences which had been placed around the land were torn down by a train-load of navvies, acting under the direction of the advisers of the Commons Society, at the instance of Mr. Augustus Smith. The subsequent litigation led to a notable victory, which served as an encouragement in resisting other unlawful enclosures.

At the same time fights were waging with reference to Tooting Graveney Common and Bostall Heath and Plumstead Common, particularly fine open spaces, now under the safe control of the London County Council.

Tooting Graveney Common is one of the most delightful of our southern open spaces. Clumps of gorse and underwood, interspersed with well-grown trees, convey the impression of a rural common of considerable size. It is, nevertheless, only sixty-six acres in extent. It was purchased in 1861 by a Mr. W. S. Thompson, together with some copyhold tenements, for the sum of £3,650. It was hoped by his neighbours in order to preserve it for the public use. But "hope told a flattering tale," and after Mr. Thompson had endeavoured to induce the Enclosure Commissioners to bless a proposal to enclose all, and, subsequently, a portion of the Common, he fenced in twenty-five acres of the land in 1865. Three years later the fences were broken down by the commoners, and on the advice of the Commons Society proceedings were commenced against Mr. Thompson by Mr. Betts and two other commoners. The plea was put forward that by non-user the rights of common had been lost, and that, as lord of the manor, Mr. Thompson was entitled to enclose the Common under the Statute of Merton, since, as it was urged, the freehold tenants were not aggrieved.

The hearing of the action lasted for eleven days, before Lord Romilly, and, on appeal, for six more days. In each Court the commoners triumphantly vindicated their claims. "Mr. Thompson," said Lord Hatherley in pronouncing the judgment of the Court of Appeal, "had purchased the manor for a comparatively small sum, and if he had succeeded in depriving the freeholders of all rights would have made a very handsome profit, and he seemed to have considered that, being the lord of the manor, his title could not, without difficulty, be displaced. In that speculation he had been disappointed."

Tooting Common was thus rescued from the hands of the speculative builder. The manorial rights in this Common and in its near neighbour, Tooting Bec, were subsequently bought by the Metropolitan Board of Works, and are now vested in the London County Council.

By way of contrast it is only fair to note that all lords of manors did not show the same complete disregard of the public interests in commons as was manifested at Tooting Graveney. For instance, in the case of Streatham Common, which is distant less than a mile from Tooting Bec, the Ecclesiastical Commissioners, as lords of the manor, not only became willing parties to a regulation scheme, but also conveyed their manorial rights to the public for the nominal sum of £5.

This Common is sixty-six acres in extent, and rises to a considerable height over the surrounding district. It is pleasantly undulating and picturesque, and, at the instance of a committee formed by Mr. Stenton Covington, it has recently been extended by the addition of the charming grounds of the Rookery, in which is to be seen the ancient pump-house of Streatham Wells. It should be further enlarged by the acquisition of the slopes adjoining the Rookery.

In the case of Plumstead Common and Bostall Heath, the offending owners were the Fellows of Queen's College, Oxford, from whom better things might have been expected than the enclosure in 1865 of these valuable lungs. Here, again, the Commons Society was able to find in Sir Julian Goldsmid and Mr. J. Warrick, commoners prepared to challenge the legality of the enclosures. After a weary fight it was laid down by the Court of Appeal that the enclosures could not be justified, and the use of the two commons was restored to the public.

Wimbledon Common was next saved from danger. The then lord of the manor, Earl Spencer, had, in 1865, propounded in Parliament a scheme involving the sale of one-third of the Common, the extinction of the rights of the commoners, and the reservation for his own use of a site on the Common for a mansion and park. The rest of the Common was to become a public open space. This proposal was rejected by the Select Committee in 1865, although the scheme was far more generous to the public than any of its predecessors. It was, however, strongly opposed by the commoners, led by Sir H. Peck and by the Commons Society, for it involved a serious sacrifice of land that could ill be spared.

This led to an estrangement of the relations between the lord of the manor and the commoners. The owner showed that he took a somewhat narrow view of the legal position of the public interests; and the commoners, on their part, felt that their rights were so extensive as to render their approval necessary to any proposals with regard to the commons.

Lord Spencer was lord of the manors of Wimbledon, Putney, Battersea, and Clapham, and in consequence of the acute differences of opinion which existed as to the manorial and commoners' rights proceedings were initiated by Sir Henry Peck against Lord Spencer in 1866. The unexpected discovery that, in respect of a large area of land, not previously taken into consideration, common rights existed, rendered possible a compromise, and the litigation was happily abandoned.

The compromise provided that Lord Spencer should convey all his rights in Wimbledon Common and Putney Heath to a board of eight conservators, receiving in return an undertaking for the payment of a perpetual annuity of £1,200. In order to raise this sum, and to meet the expense of maintaining the Common as an open space, the novel principle was introduced of levying a rate upon all dwelling-houses annually assessed at or over £35 and situate within three-quarters of a mile of the Common. The occupiers were to be taxed in proportion to their nearness to the Common in quarter of a mile zones. This arrangement was confirmed in 1871 by a special Act of Parliament, and Wimbledon may be congratulated upon the consummation of a scheme which fully justified the strenuous opposition to the original proposals. It is much to be hoped that a similar method of providing purchase-money will be attempted in other cases.

Wimbledon Common, thus saved, was already one of the most spacious, as it is also one of the best-known

and most beautiful open spaces in the neighbourhood of London. The rapid development of the district has rendered necessary a further effort to protect from disfigurement that which had only been saved at the cost of so much sacrifice. A committee, inspired by Mr. Richardson Evans, has been strenuously working for over six years to acquire the land lying between the Common and Richmond Park and along the borders of Beverley Brook. The bulk of this land has been already secured and added to the Common. The completion of the scheme would protect the amenity of the existing land and furnish an unbroken area of open space extending from Putney and Wimbledon to Kingston, Hain, and Richmond.

(To be continued.)

### AN ARCHITECT'S INCOME TAX.

In the King's Bench Division, on Wednesday, July 12, Mr. Justice Atkin had before him an appeal by Mr. Phillip Sidney Stott, architect, &c., of Oldham, against an assessment for income tax arrived at by the Commissioners for the Middleton Division of Lancaster, held at Oldham.

Mr. Stott, it appeared, carried on his business at Yorkshire Street, Oldham, and he was assessed under Schedule D. for the year ending April 5, 1911, as to £17,563 in respect of the profits of his business. This assessment was based on the average profits of the three preceding years after disallowing as a deduction a sum of £3,201, representing the average net loss in the three years incurred by the realisation of shares held by him in various companies. Mr. Stott's principal business related to the erection of cotton mills for limited companies and firms, and to get the appointment for the architect's work it was necessary that he should agree to take up shares in such companies, and he therefore could not have made his profits unless he took up these shares. He was obliged to sell shares that resulted in the loss of £3,201; and he claimed that he was entitled to have the assessment reduced by that amount.

The Surveyor of Taxes contended that this money could not be deducted as it was not money wholly expended for the purposes of the business within the meaning of the rules of the Act, and that the shares in the companies were an investment of capital, and any loss that resulted was a loss of capital. The Commissioners had decided in favour of the contention of the Surveyor, and Mr. Stott now appealed.

Mr. Montgomery, K.C., and Mr. Watts argued the case for the appellant, and the Commissioners were represented by the Attorney-General, Sir F. E. Smith, K.C., M.P., and Mr. Parr.

After hearing legal arguments his Lordship dismissed the appeal, and said that there was evidence on which the Commissioners could find that these losses were losses of capital.

### OBLIGATORY TOWN PLANNING.\*

#### (1) THE CASE.

By HENRY R. ALDRIDGE, Secretary, National Housing and Town Planning Council.

#### (2) PROVISIONS WHICH SHOULD BE MADE OBLIGATORY.

By COUNCILLOR HAROLD SHAWCROSS, J.P., Chairman, National Housing and Town Planning Council.

(Continued from last week.)

#### (1) THE CASE FOR OBLIGATORY PLANNING.

(b) *Should not the usage of town planning powers be left for the present at least to the good sense of local authorities?*—Coming to this, the second point, it would seem at first sight that Parliament might well allow several more years to elapse before making the preparation of schemes obligatory on all local authorities.

In support of this argument it may be urged that many local authorities have recognised the enormous value of town planning powers and have adopted them willingly. But this argument must be rejected as invalid, since it does not take into account the almost incomprehensible apathy of most local authorities when they have placed in their hand duties of grave national importance.

The vital importance of this apathy and inertness of some local authorities will be made clear by stating a fact to which all must give assent, viz., that under the present permissive system the taking of action under the Act of 1909 bears no relation whatever to the need for such action. The factor is not one of need for action but of the interest and zeal shown by individual councillors and officers. Where for any reason this factor of interest or zeal is absent, then no town planning action is taken, whatever may be the need for such action. Such a condition of affairs is not only absurd, it is against the public interest.

Consider for a moment what this means in actual development to-day. The council of a pleasure city by the sea rightly regards it as essential that full advantage should be taken of the Act of Parliament, and steps are therefore taken by the town council to add still further to the amenities of the community by securing control of all new developments.

But over a great tract of land, comprising industrial villages and towns given over to the production of coal and iron—a district in which life is hard and the surroundings dreary—the task of planning is left untouched and new developments are allowed to take place without control other than that of the by-laws. The result is that the process which has been wittily called the "building of brick boxes with slate lids" in dreary rows, continues unchecked.

Now there may be many reasons which in the judgment of members of the local authorities in these areas justify their neglect of town planning care. But from the point of view of the Member of Parliament studying the question from the point of view of national need, these reasons for inaction are negligible. The fact remains that there is less care taken in districts in which amenity is most needed to make up for the drabness and hard toil of daily life, than in districts in which the leisured classes live and in which amenity is already made the subject of great care.

Parliament indeed dare not neglect the problem. Nothing is more dangerous to the well-being of the country than a sense of social injustice. In times of disputes as to wage and other conditions much is said about the men who are "stirring up" strife. Would it not be better to give more care and thought to the conditions which stir up strife?

Together with a friend—the late Mr. George Mudie Smith—the author travelled through the South Wales mining villages in 1911 for the purpose of preparing a series of articles on housing for one of the leading London papers, the "Daily Chronicle." On their return they wrote the following of Dowlais and other villages visited:—

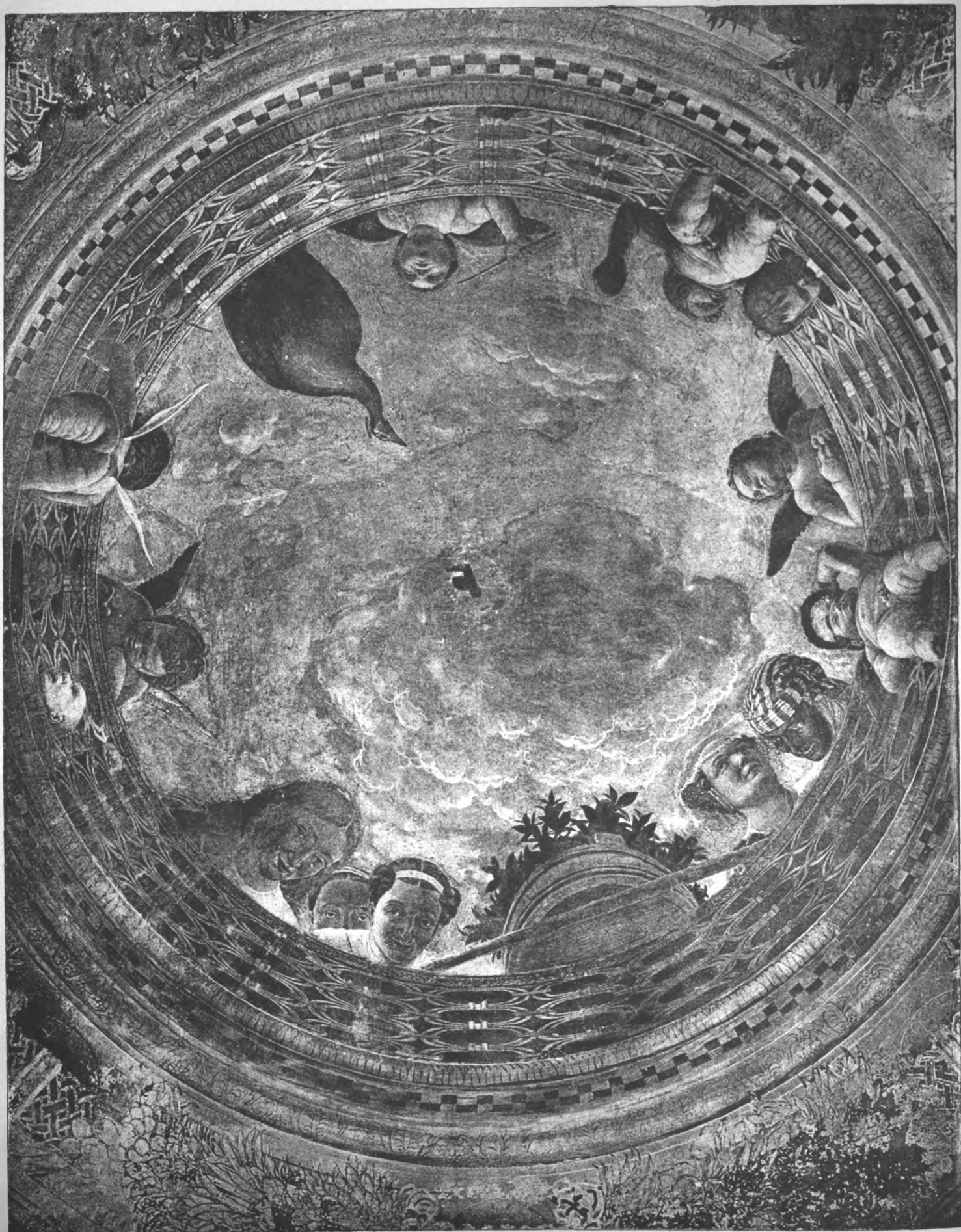
"There is an amazing contrast between the great beauty of the Welsh valleys and the terrible ugliness of many of the colliery towns and the villages those valleys contain. Imagine the worst slums of the condemned slum areas of Tabard Street, Southwark, or of Scotland Road, Liverpool, transferred bodily and planted on a magnificent moorland at the head of some of the loveliest valleys in the kingdom, and some idea may be gained of the scene.

"We cannot hope to convey any adequate idea of the hideousness of the appearance of the village of Dowlais due to the cumulative effect of rows of dirty, worn-out cottages opening on to narrow pavements; the wretched little courts, their walls black with the grime of many

\* A Paper prepared for the forty-third Annual General Meeting and Conference of the Institution of Municipal and County Engineers at Blackpool on June 29 and 30 and July 1.







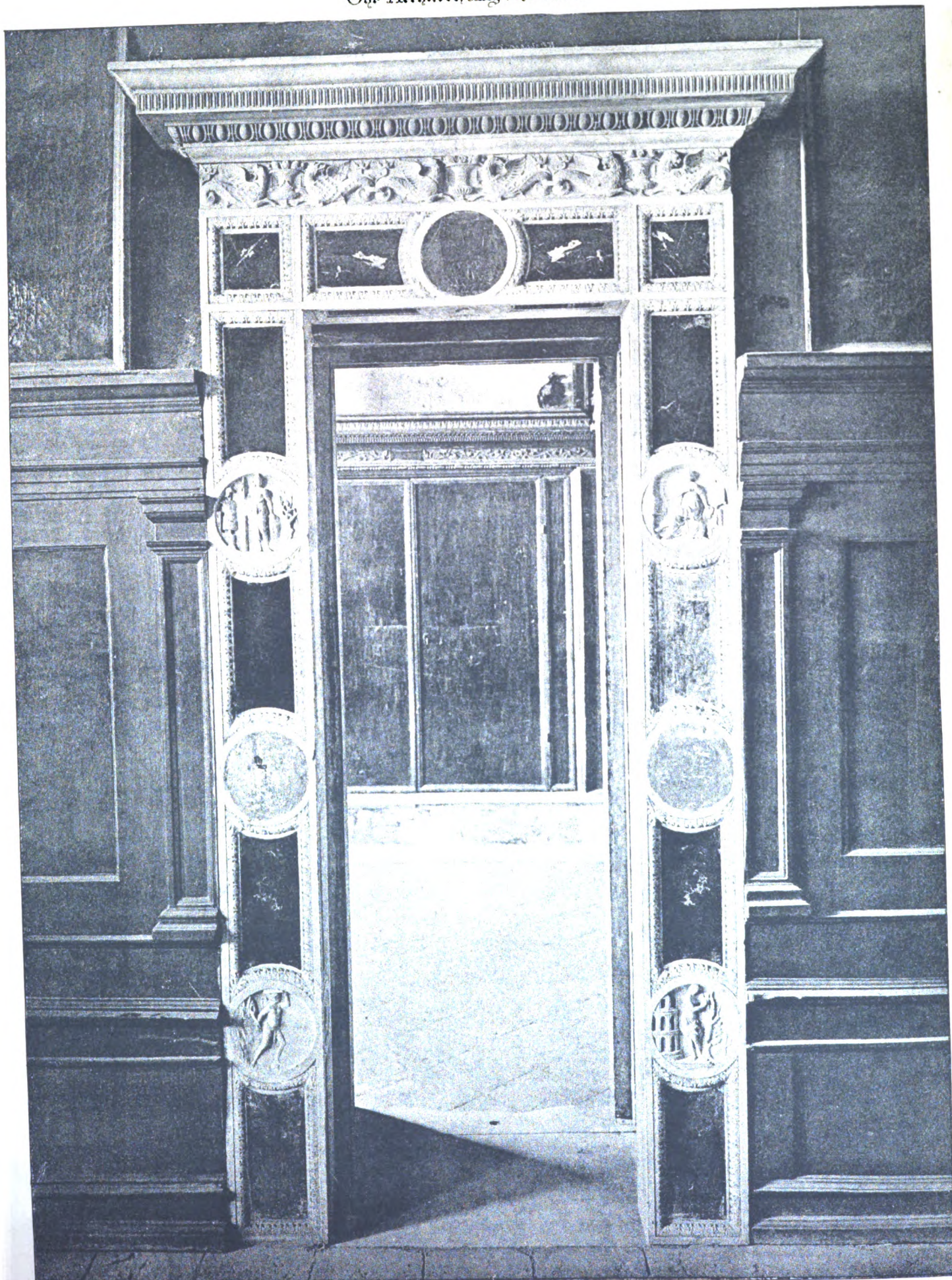
PHOTOGRAPH BY ALINARI, FLORENCE.

"INK-PHOTO" SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

DUCAL PALACE, MANTUA. CENTRAL PORTION OF CEILING IN THE "SPOSI" SALON.





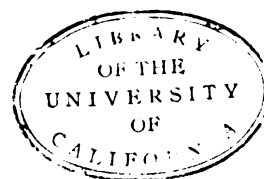


PHOTOGRAPH BY ALINARI, FLORENCE

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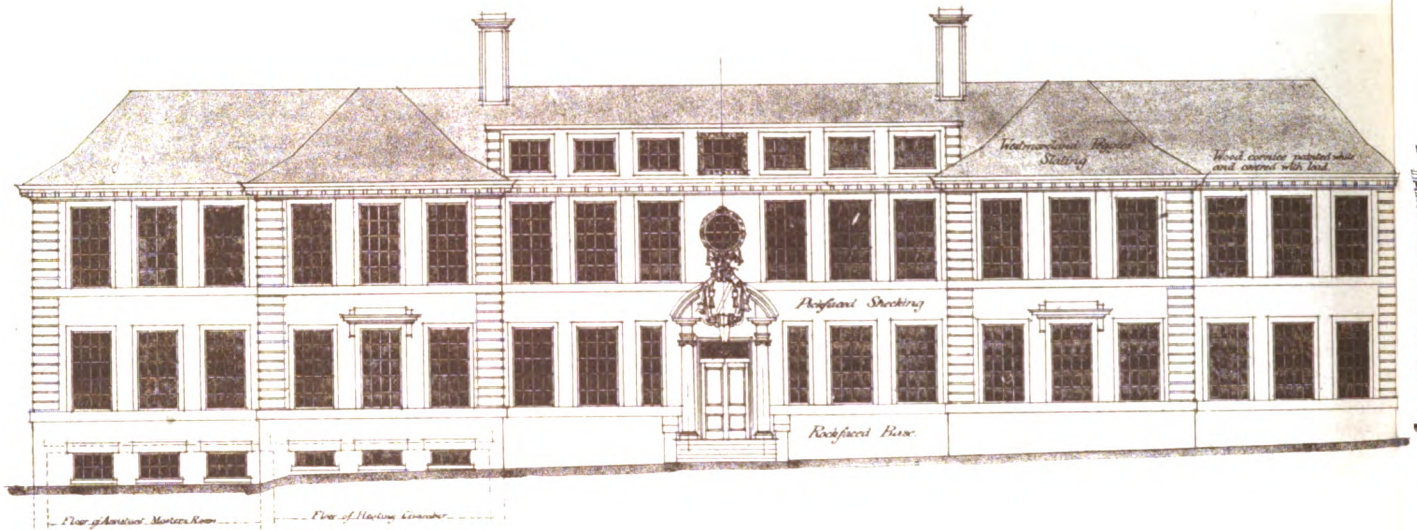
DUCAL PALACE, MANTUA. DOORWAY IN THE "PARADISE" APARTMENT.



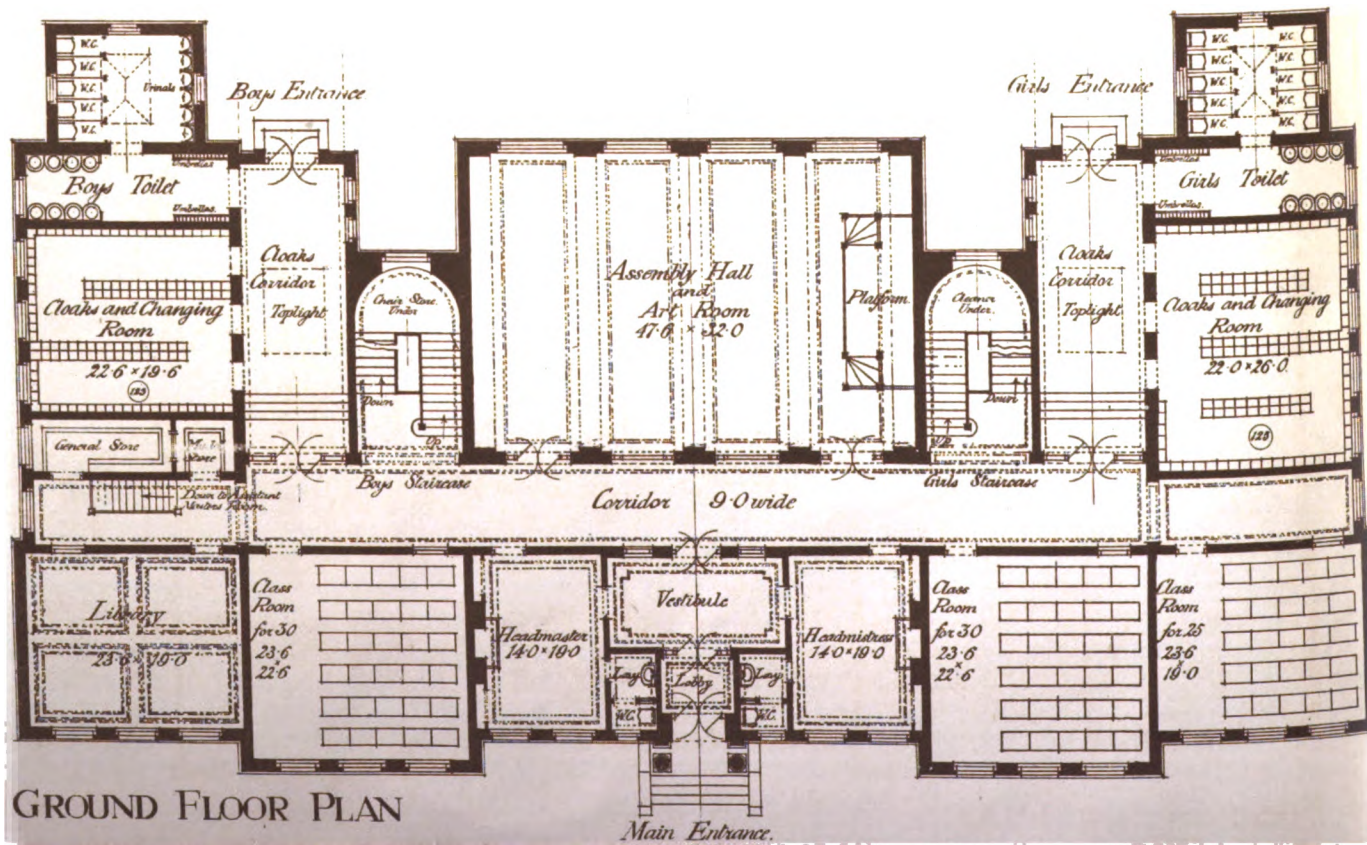




# PROPOSED SECONDARY SCHOOL CITY of BATH



SOUTH ELEVATION

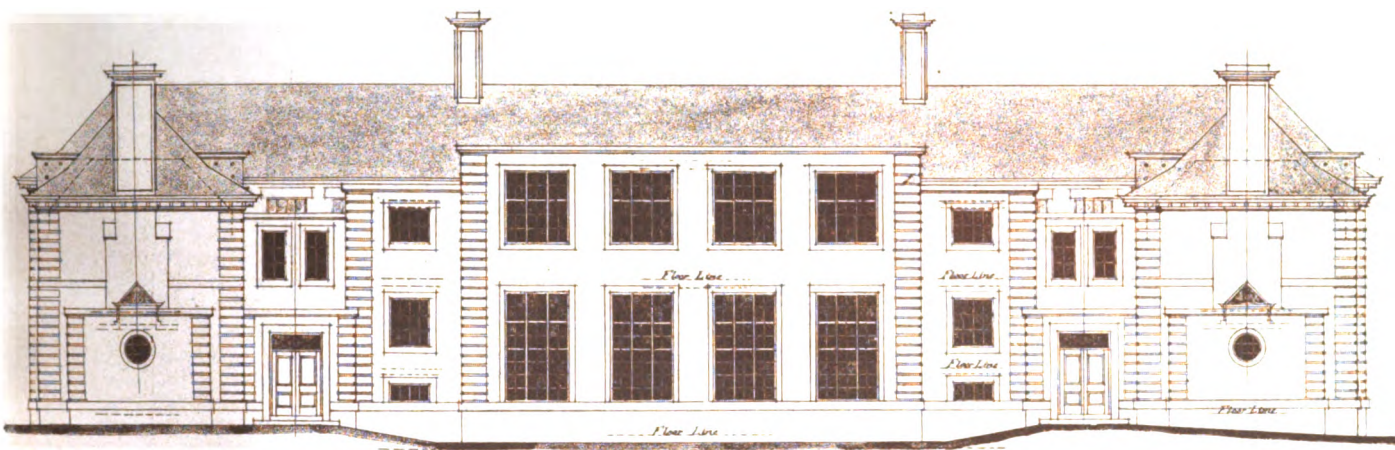


GROUND FLOOR PLAN

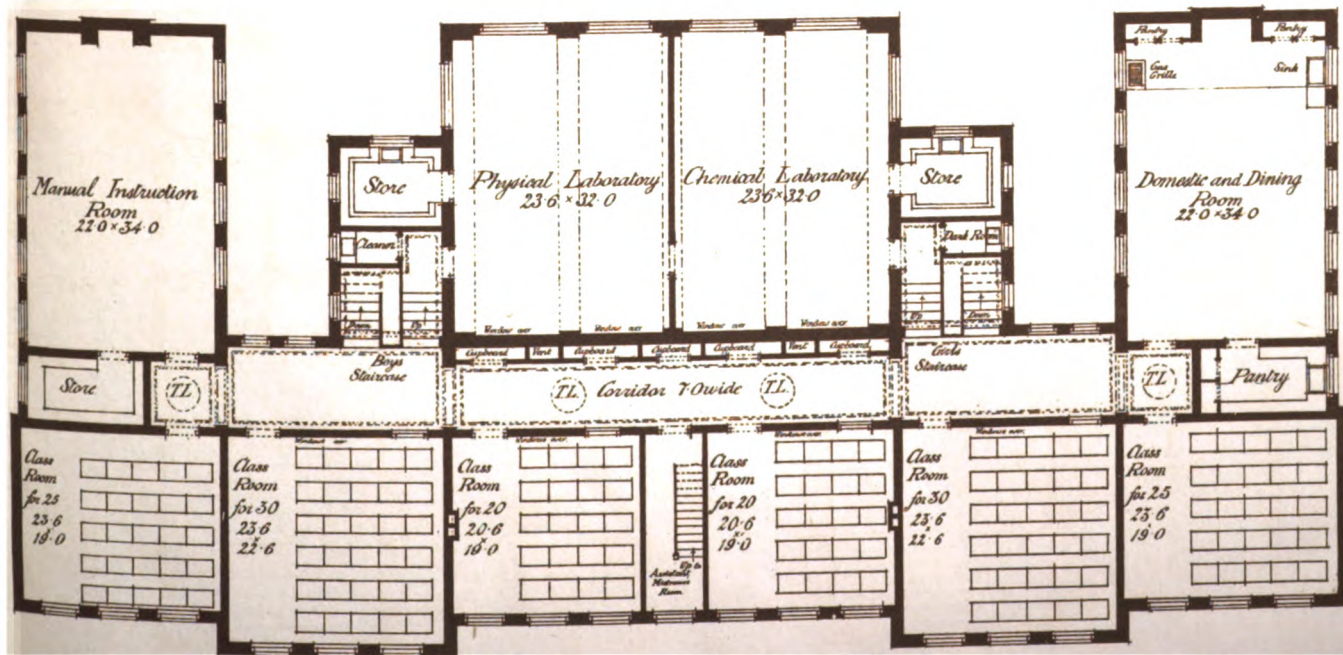


Report, July 14<sup>th</sup> 1916.

SCALE OF FEET.

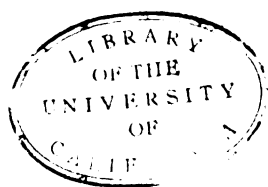


NORTH ELEVATION



FIRST FLOOR PLAN

MR. EDWARD CRATNEY, F.R.I.B.A.







DUCAL PALACE, MANTUA. DETAIL OF A CEILING IN WOOD.

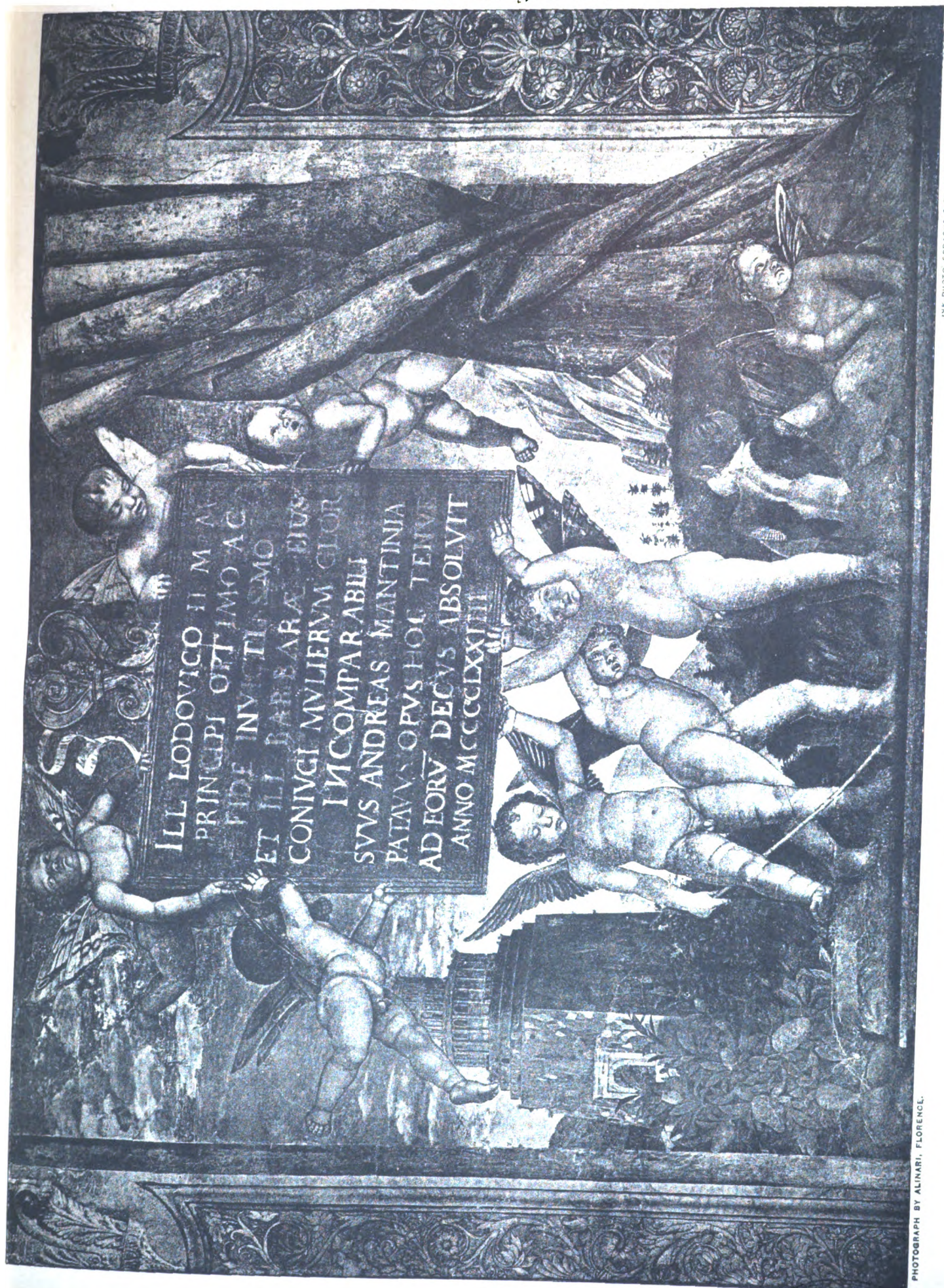
PHOTOGRAPH BY ALINARI, FLORENCE

THE PHOTO. STRAUPE & CO. 211-69 & 70 DEAN STREET, LONDON, W.









INF. PHOTO. STRAGUE & C. L. 59 & 70, DEAN STREET, SOHO, W.

DUCAL PALACE, MANTUA. PART OF A FRESCO.

PHOTOGRAPH BY ALINARI, FLORENCE.





years and many shoulders; the giant chimney stacks of the big works which provide the place with a canopy of smoke, and the absence of any green tree or flower.

"Inside the admirably organised works which the King and Queen visited a few weeks ago, the last word in the scientific production of steel is implicitly obeyed; in the town outside the elementary rules of health are neglected.

"Of any approach to planning in the modern sense there is none. If no human life, or the loss of any of the poor sticks of furniture treasured by their owners, were involved, we should say that the best thing that could happen to the greater part of Dowlais would be its swift and total disappearance from the country side it defaces.

"Whilst Dowlais has been in existence for more than half a century the great industrial development of these valleys has taken place during the last twenty years, and during the earlier part of this period everything was subordinated to the 'getting of coal,' and the production of steel and iron. This is the only, as it is the sufficient, explanation of the scandalous neglect of housing conditions throughout the district, conditions which we regard as mainly responsible for the labour unrest in South Wales. Indeed, it would indicate the complete extinction of any glimmer of a desire for better things if those who dwell in these places did not from time to time rebel even though they may be only dimly aware of the real causes of the discontent they are voicing.

"Though we covered in all a distance of nearly eighty miles in these valleys, we did not see throughout our journey a single house to let. The lack of desire to encourage any kind of beauty and development was painfully apparent, some of the rows of houses seeming interminable. Fifty in a line without a break was a common sight, and as every house was an exact copy of its neighbour, the dreariness can be imagined. In one row we counted an unbroken line of no fewer than sixty-six houses."

Those who know South Wales will bear witness that a change is taking place, but it is taking place very slowly, and meanwhile old and bad examples of by-law development are being copied. This applies not only to colliery districts, but to many other districts throughout the kingdom.

In hundreds of town and urban villages land is being covered with houses in the construction of which large capital sums are being spent and the conditions of home life and the surroundings of the homes of thousands of families are being determined for at least sixty years to come.

In normal pre-war times the average number of houses built every year under £20 annual value was at least 80,000. The great majority of these were built under conditions which meant that insufficient ground space was provided and with one of the fundamental needs of a healthy home—a garden—lacking.

The reason for this is not far to seek. The average by-law requires that there shall be 36 feet and 40 feet between house-front and house-front, and 150 square feet of curtilage space at the rear of the dwelling. This minimum of by-law requirements has been regarded as a maximum, and as a result new slums are being created.

It is not true that this overcrowding of houses on land is necessary. London is the greatest city in the world both in regard to population and the area covered. Not long since the author met a young member of the Royal Flying Corps who told him that he was stationed in Essex and had that day been up four times. In his flight he had passed over a great section of London. "The curious thing about London," said he, "is the relatively small area covered by houses. There are enormous areas unbuilt on, whilst the houses are closely packed on the built-up areas. Along, and adjacent to, the main roads out of London the houses are built in close lines, but away from the great roads you see great open spaces, and in comparison to these the built-up areas seem curiously small."

That this aeroplane view is correct will be realised by

all who have troubled to study the map of London or any great town. There is no excuse for overcrowding of houses on sites.

(c) *Have we acquired sufficient skill in planning?*—This argument is invalid because it ignores the existence of what may be called the "special ability" factor.

Let it be clearly realised that in planning there are no mysteries. It is true that as in the practice of all arts, the difference between the work of the good artist and the bad artist may be very great. But provided that good standards are adopted and provided that wisdom is shown by officers and the local authorities they serve, the danger of bad planning is not very great.

In any case the task of preparing the obligatory scheme described by Mr. Shawcross later in this report, is one which need present no insuperable obstacles to any local authorities.

(d) *Is it essential that planning shall be made obligatory in rural districts?*—For no other reason than that of saving the country from a large waste of public money, it is essential that the desirability of rural planning should be regarded as within the range of practical politics.

There are no statistics available as to the width of the present main and secondary roads in rural districts, but it is probably a fact that, excluding the great main roads, three-fourths of the secondary roads which have to bear the bulk of the traffic of rural areas, and often serve to connect important towns, are less than twenty feet in width.

Many public men are of opinion that there will be a great agricultural development in the near future, through the extension of small holdings and of co-operative undertakings, and in many districts much is hoped for from light railways and better and cheaper means of transit. New roads will be required—some of them main roads, and others to relieve traffic on present roads where the distances are too long between towns and villages.

(To be continued.)

## ART IN LONDON.

### THE DECORATIVE ART GROUP.

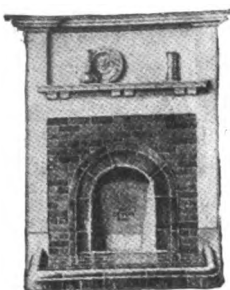
THE Modern Gallery at 61 New Bond Street has, ere now, earned our plaudits for the quality of its shows; but the one under consideration cannot be included amongst those we deem worthy. In fact, the Decorative Art Group would seem to be the latest-born "School," and, like most (if not all) modern associations of the nature, seems to base its *raison d'être* upon the failures or shortcomings of the preceding schools. Readers of "The Architect" know our views upon the various faddist crazes which have misused and abused the term "Art": is there to be no finality?

An art critic, whether amateur or expert, can select one of many ways of gauging the merits of the work submitted to inspection. There is the comparative method, which is in itself divisible and sub-divisible; there is the absolute, which must be employed with extreme care, as it may easily savour of impertinence; there is the *vox populi* method, which is in reality not true criticism at all. Other classifications there are also, and amongst these is the commonsense appreciation—that is to say, freedom from bias towards any extreme, with merely a regard from a standpoint of dispassionate valuation.

We are minded in the present instance to proceed upon the latter lines, combined to an extent with the comparative method; and it is perhaps desirable to state here that the powers of performance and criticism are not necessarily correlated, though in the present case such an association exists.

The Group has a membership of nine, all of whom are contributors, the most prolific being Mr. Carlo Norway, the hon. secretary; he is responsible for one-third, in fact, and for the most part the quality is very poor. The inlay decorative panel "Crab and frog" has





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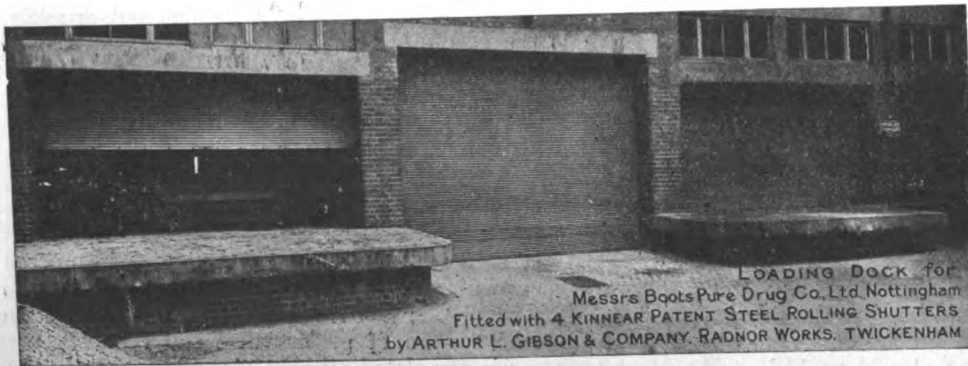
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a certain interest, and Mr. Norway suggests the texture of glass very vividly in No. 8 ("Still Life"); also his portrait study in No. 27 and the "Old Apple-tree" (61) may be noted; but for the rest—! The only artist really deserving of unstinted praise is Miss Nancy Smith, whose grip of decorative art is to be valued highly; the public may judge of her work day by day in many of the railway stations, where her "locality" and "attraction" panel-posters are displayed. Mr. C. R. W. Nevinson's work we have seen before now, if we mistake not; what can be said of "My arrival" and "Improvisation" except to describe them as post-Impressionist frenzies? Mr. Arnold Higner contributes both passable and deplorable portrait-studies; in genre, in No. 38, he unsuccessfully competes with William Etty, and we are forced to speculate as to where the Adam is to be found who would be seduced by the Eve depicted in No. 90. But we have said enough—and will leave the rest to kindly oblivion.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### An Architect's Tour in Northern Italy.

SIR,—As an old and constant reader of "The Architect" for many years, I have patiently waited in the hope that some better man would have written to express our gratitude to the author of the many interesting articles which have, week by week, appeared in it on "A Holiday in Northern Italy" (of special interest at the present time), which have revived many old memories, and to which additional value has been added by the accompaniment of many familiar pictures. Allow me, then, in default of others, to thank Mr. Ruthen for them, and you for giving them to us.—Yours, &c.,

Stony Stratford:

E. SWINFEN HARRIS.

July 7, 1916.

#### Aberdeen versus Foreign Granite.

SIR,—In reply to the letter from "Another Merchant," which appears in your issue of July 7, I desire to say that the cost of production of the foreign granites has nothing whatever to do with the question of their consumption in this country. The price of these granites is in many cases 50 per cent., and in some even 100 per cent., higher than that of native stones.

The growth in the consumption of foreign granites is accounted for not only by the great beauty and variety of colour which these stones afford, but also by their greater freedom from blemishes and defects.

Among the foreign granites at present on the market are some of the most beautiful reds, blacks, greens, and Labradorites—granites such as this country has nothing to compare with.

The United States, and other countries to which we export our granite manufactures, demand these varieties, and the only effect of any hindrance to our importing the raw material from these quarries will be to kill our export trade.

It must be remembered that the foreign stones now on the market are an example of "the survival of the fittest," scores of experiments with other varieties having been made at different times, generally with disastrous financial results to owner and shipper.—Yours, &c.,

July 12, 1916.

MERCHANT.

["Merchant" gives only part of the truth. Some Norwegian granites are expensive. Others are cheaper than Aberdeen granite, though no more suitable for their particular purpose.—Ed.]

MESSRS. MOORE, BATEMAN & FOX, consulting engineers, have prepared a scheme for the erection of a reservoir of 27,000,000 gallons by the Bideford Town Council at an estimated cost of £13,588.

## BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### DEVON.

Newton Abbot.—Proposed smallpox hospital.

Torquay.—Proposed technical school.

##### DURHAM.

Gateshead.—Proposed Carnegie Public Library (£15,000).

Ryton.—Proposed Wesleyan church, Greenside.

West Hartlepool.—Power-house, off Middleton Road, for Hartlepool Gas and Water Company.

##### HERTFORDSHIRE.

Barnet.—Boys' Grammar School: alterations.

##### KENT.

Crayford.—County Council school, Arthur Street, for 100 places.

##### LANCASHIRE.

Banks.—Proposed church.

Crompton.—The "King's Arms" Inn, Shaw: alterations.

Liverpool.—Proposed picturedome, Clayton Square and Houghton Street, for Mr. F. Warden (of 20 Hallville Road).

Ormskirk.—Proposed Works, Burscough Lane, for the United Brassfounders and Engineers, Ltd. (of Manchester).

##### NORTHAMPTONSHIRE.

Brackley.—Cottages, Manor Road, for Mr. S. Alcock.

Northampton.—Three houses, Abington Avenue. Mr.

H. Green, builder, Ashburnham Road.

No. 78 Derngate: alterations for Mr. W. J. Bassett-Lowke.

Three houses, Vicarage Lane: alterations for Mr. J. Perkins.

Warehouse, Wood Street, for Messrs. A. & W. Cleaver.

##### NOTTINGHAMSHIRE.

Warsop.—Twenty houses, Bainbridge Road, for the New Hucknall Colliery Co.

##### STAFFORDSHIRE.

Stoke-on-Trent.—Proposed Baptist chapel, Skellern Street, for the Butt Lane Chapel.

##### SURREY.

Guildford.—Buildings, Ram Corner, for Messrs. C. A. & L. Gates, Ltd.

Mitcham.—Lord Kitchener Memorial Home, for C.E. Waifs and Strays Society (£5,000 to £6,000).

##### YORKSHIRE.

Castleford.—Proposed church, Cutsyke.

Catterick.—The "Bay Horse" Inn: alterations for Messrs. Smith's Tadcaster Brewery.

Post Office.

Healey.—The "Black Horse" Inn: alterations.

Tunstall.—The "Sportsman's Arms" p.h.: alterations.

Mr. G. W. Atkinson, architect, 1 Mark Lane, Leeds.

#### SCOTLAND.

Dailly.—Houses for the South Ayrshire Collieries, Ltd. (of Glasgow).

Dunder.—Piggeries, Springhill, for Mr. A. G. Kidd.

Britannia Works, East Dock Street: additions and alterations for Messrs. Cooper & Greig, Ltd.

Dunoon.—Convalescent homes for women and children, Airdmhor, Kilbride: additions and alterations (£4,000) for the Co-operative Convalescent Homes, Ltd., Glasgow.

Edinburgh.—No. 30 Dean Street: alterations for the Stockbridge Cinema Company.

No. 18 Greenside Lane and Marshall's Court: alterations as a factory for the Incorporated Soldiers' and Sailors' Help Society.

Paisley.—Hippodrome for Mr. Bostock. Mr. C. McNair, architect, 112 Bath Street, Glasgow.

#### IRELAND.

Dublin.—Business premises, Middle Abbey and Sackville Streets. Messrs. Batchelor & Hicks, F.F.R.I.B.A., &c., architects, 86 Merrion Square South. Messrs. J. & W. Stewart, contractors, 120 Great Brunswick Street. Keenagh, Crossmolina.—R.C. church. Messrs. W. H. Byrne & Son, R.I.A.I., architects, 20 Suffolk Street. Dublin. Mr. Isaac Beckett (of Ballina), contractor.

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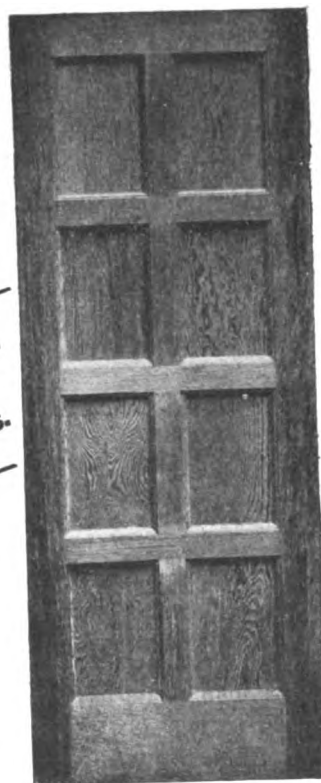
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# THE ARCHITECT

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### DESIGNS FOR WAR MEMORIALS.

THE well-intentioned action of the Civic Arts Association in promoting a competition for designs of war memorials has not met with the success that might have been expected or, at least, hoped. A very large number of drawings and models, some 400, were sent in, but the majority of them were of so poor a quality that the judges considered that eighty-four only were worthy even of exhibition, and it cannot be said that in their qualified and implied approbation of those selected they have erred on the side of severity. A far more drastic weeding out is required if the designs exhibited are to be considered as satisfactory substitutes for "the usual trivial and commonplace type to which, unfortunately, we are accustomed."

The most important of the series of competitions is that designated Class I., "Design for a Monument suitable for erection in the centre of the members' courtyard at the new County Hall, London, in commemoration of those of the London County Council staff who sacrifice their lives in the war." For this, the design by Mr. E. A. Rickards, F.R.I.B.A., and Mr. Henry Poole, R.B.S., is an easy first, and is rightly awarded both the first prize, £50, and a "Country Life" prize of £10. We hope that the design may be carried out, as London will then be possessed of at least one satisfactory war memorial. Upon a stylobate of segmentally planned steps arranged in quatrefoil is a well-conceived architectural pedestal, such as no one can design better than Mr. Rickards, having a finely moulded base which leads up well to the die. This is oblong on plan, straight sided, with waved front and back. On the waved contours are cartouches, on the straight sides flat moulded panels. The inscriptions are "In Memoriam" in front, "To those who fell on land" and "To those who were lost at sea" on the sides, "To those who perished in the air" at the rear. Projecting from the base of the flat sides are appropriate trophies in bronze of military and naval character respectively. The pedestal supports a sculptured group in bronze, consisting of a nude male figure, supported by a female figure draped in recognisable French costume. The female figure holds aloft in one hand a cross, towards which the male is looking, whilst with the other she grasps a weapon which he has just relinquished. In sentiment, in composition, in form the monument is excellent.

The second prize is awarded to Mr. Eric Gill, sculptor, and Mr. Charles Holden, architect, for a design which appears to have been chosen for its complete departure from "the usual trivial and commonplace type," and consists of a bronze group representing "Christ driving the Men of Commerce out of the Temple," supported on a severely plain oblong pedestal. The group is somewhat crowded and devoid of a satisfactory silhouette, always, to our thinking, an important necessity for a sculptured group, particularly in bronze.

Messrs. Alan Wyon and Stanley C. Ramsay are awarded the third ("Country Life") prize for a design which consists of a circular pedestal adorned with flat pilasters and a decorative frieze in bronze, and supporting a draped figure of Victory. In front of the pedestal is an "altar of sacrifice," on the top of which are war trophies in bronze, and on the front a commemorative inscription. Here again the selection has clearly been based on a departure from "the usual trivial and commonplace type" rather than any intrinsic beauty or appropriateness of design.

The remaining designs exhibited in Class I. are deficient either in their architecture, their sculpture, or their sentiment, and illustrate the necessity for this class of memorial of collaboration between an architect and a sculptor, each well qualified in his particular technique, and imbued with originality of thought as well as sound judgment of appropriate sentiment. Some of the unrewarded designs err on the side of extravagance and too high ambition.

Class II., "Design for a Wall Tablet in cast bronze," to be executed for £50, is one of the disappointments of the competition. The first prize design, by Mr. Eric Bradbury, is sufficiently restrained and appropriate, but the difference between the design placed second, by Messrs. H. P. Gill & R. F. Wilson, and that awarded the third place, by Mr. Macdonald Gill, makes us wonder in what light the authors regarded the requirement "to be executed for £50." The former must come quite up to the limit, with its excellent sculptural treatment, even if it is to be produced in quantity, whilst the latter could scarcely be good value for the price of a plain-lettered tablet with a regimental badge.

Class III., "Design for a Wall Tablet in carved wood," to be executed for £50, must be another disappointment for the promoters of the competition. The first prize is awarded to a design by Mr. Thomas Rayson, a not very architectural frame, with a pair of cherubs' heads in the tympanum of a pediment. The second place is given to a curious and original conception, by Mr. F. C. Eden, with winged mediæval angels supporting a panel wreathed with thorns and crowned with three nails of the Passion. For execution in wood this could hardly be completed without an elaborate building up of separate parts, and the design would be far more appropriate for cast metal. The design placed third, by Mr. Walter John Brown, consists of a circular panel surmounted by a broken triangular pediment, supported by cherubs' heads. It is well drawn, but lacks homogeneity of outline, and the executant would surely be but poorly remunerated by the payment of £50.

Class IV., "Design for a Wall Tablet in marble or stone," is saved by the limitation of cost to £25. The first prize design, by Mr. Eric Gill, is simply a plain slab with a circular top, in which is the badge of the Cameron Highlanders, coloured. The second design, by Mr. Alec Miller, is a trifle more elaborate, with a winged figure under a quasi-canopy at the top, and a regimental badge at the bottom breaking into a simply moulded border. A book prize is awarded to Mrs. Bernard Jenkin for a design which shows ignorance of architecture, but utilises with modifications a well-modelled winged figure, which the artist, evidently, happened to have by her.

Class V., "Design for a simple Wall Tablet in wood," is the most successful of the trade classes, the first prize going to a very suitable example of treatment in stained wood, with good lettering and a regimental device very well "drawn with a pen in gesso and gilded." This is by Mr. Tom Broadbent. The second design, by Mr. A. E. Martin, is rather more elaborate, with a laurel wreath in carved oak overlaid by a plain moulded tablet with side horns, regimental arms painted above, and the rose, thistle, or shamrock below, "for nationality."

Class VI., "Mural Painting for a Boys' Club," is



not a success. The best piece of composition and colour is emblematical of "Peace," and does not get a prize, as its intended commemorative purpose is scarcely perceptible. The first prize design illustrates the parting of a soldier from his weeping womenkind; the second is supposed to depict the river of life (or death) running through the land, dividing the old from the young, and the bereaved are finding consolation in the lines of Laurence Binyon, "For the Fallen—They shall not grow old as we that are left grow old."

Class VII., "A Fountain, architectural or sculptural, or a combination, for an open site in a country town or village, in memory of the local soldiers who have given their lives for their country in this war," possibly suggested the remark of the Master of Magdalene, at the formal opening ceremony, that "we had an ugly habit of combining, if we could, local utility with a memorial"; but except that they are more or less fountains, the designs submitted do not err on the side of excessive utility. The first prize design, by Mr. Cyril A. Farey, Soane Medallist and Lieutenant, A.S.C., is an architectural screen, with a fountain in the centre and seats on either side, from which those who rest can look upon a lily-pond, the reflection of the monument in which is an essential element in the effectiveness of the clever water-colour perspective in which Lieutenant Farey displays his design. The second and third prizes are of equal value, and the catalogue is a little erratic in its ascription, but we understand that Mr. T. H. Morcom is second, and Miss Helen Frazer Rock third. Both are more sculptural than architectural. Mr. Morcom's design consists of a cross on a square column, from which branch buttresses to divide the water-bowls. On the cross is a figure of a soldier in mediæval armour. Miss Rock's conception is a simple stone bowl on four plain shafts, surmounted by a bronze figure holding a laurel wreath, "The Angel of Remembrance guards the past between her hands," and around are bronze reliefs of patron saints dividing stone panels for inscriptions. Both are quite worthy of being carried into execution.

Under Class VIII., "Inexpensive memorials for the Home," are a few examples of "art and craft" character, of no great excellence except for three medal stands designed by Mr. Arthur Stratton, executed by Thomas Elsley, Ltd., and a couple of panels of stained-glass with regimental badges by Mr. Arthur Dix.

### PAINTED DECORATION ON FURNITURE.\*

THE heresy that the sole art worthy of a painter is that of oil painting on canvas in a gilt frame came into being only during the nineteenth century. In all periods of the renaissance, as in the art of the middle ages, and further back still in time, in that of Rome, of Greece, of Egypt, the decoration of furniture was practised and recognised as a fitting field for the inspired work of the best artist-painters. Even during the Gothic revival of the Victorian era, William Burges and many of his contemporaries encouraged picture painting as a legitimate and appropriate method for the decoration of furniture. We might even go so far as to say that at all periods when the public appreciation of art was real, painted decoration on furniture was accepted as a true function of art.

Therefore it is that we are right glad to welcome the initiation by Lady Kinloch of a revival of the application of artistic skill in painting to the decoration of furniture, as manifested in an exhibition held at her studio, 296 King's Road, Chelsea. True that the war has been a proximate cause of this revival, which is in part inspired by a desire to provide employment for those who have been hard hit by the cessation or at least serious curtailment of picture buying—"old masters" excepted. But our welcome is not in-

spired alone by philanthropic sentiment; it is enthused thereby, but may well be justified by the intrinsic artistic propriety of such a medium as furniture for the display of the highest skill of the painter.

To Lady Kinloch is due the credit (which she, indeed, is by no means inclined to magnify) of organising a school, or, say, a guild of art for the decorative painting of furniture, in succession to the work which formed such a happy feature of the second half of the eighteenth century. It is not, however, this lady's idea or desire to copy slavishly the output of any one former age; her views are much more sane, and are more allied to the steady progress of English mediæval architecture than to the various revivals of later centuries. Her idea has been crystallised with commendable promptitude; unfortunate artists, whose talents have hitherto found an outlet in portraiture, landscape art, or genre work, and whom the war has deprived of their means of livelihood, have been enabled to devote their attention to the details of this decorative art, the first-fruits of which are now to be seen at Lady Kinloch's studio. The firm of Tredegars, Limited, have been appointed her agents, and they have made arrangements for the permanent exhibition of examples of work at their showrooms, No. 7 Brook Street, W.

The display in Lady Kinloch's studio made it evident that true artists had been at work. The hostess was present on the occasion of our visit, and her practical philanthropy is deserving of public recognition in the way in which she alone desires recognition; for her purpose in starting a new or revived industry, though philanthropic at its foundation, can only be built up and coped if the public rallies round with the intention of giving practical encouragement; in the absence of public support the effort would, of necessity, prove abortive.

Before referring to some of the exhibits it might be remarked that H.M. the Queen—a connoisseur—paid a lengthy visit to the studio on the 12th inst., and expressed her gratification with the quality of the work; her Majesty made some purchases and gave valuable commissions for further work. Already, too, has Lady Kinloch sent to Canada a suite of bedroom furniture to the order of Lord Shaughnessy, and other connoisseurs, we are told, "have been swift to appreciate the merits of a decorative manner too long neglected."

There were some three dozen to four dozen pieces on show, the majority of which proved highly attractive; the accompanying illustrations must of necessity fail entirely to convey any idea of the colour schemes, but may serve to indicate the delicacy of treatment in design. The table (Figs. 4 and 6) shows a warm cream ground with the design in delicate natural tones and tints, the ribbon connection being mauve; the frieze has a French grey ground with broken white festooning. Fig. 2 represents a chest of drawers in brown-grey ground with swags of flowers coloured *au naturel*. But the gem of the collection was a commode (Fig. 5), which for combined decorative design and toning it would be hard to excel; the ground is a light olive-green, the figures being in cream and cool brown, with similar toning for the ornament elsewhere. Other good work is indicated in Figs. 1 and 3. Lady Kinloch also showed that her guild is able and prepared to execute replicas of old painted furniture; but this she is not at all keen about. We wish every success to an undertaking most praiseworthy whether viewed from either the artistic or the philanthropic standpoint.

THE Welsh Historical Statues Committee have arranged that the Exhibition of Sculpture presented by Lord Rhonda to the city of Cardiff, now being held at the Grafton Galleries, shall be open free to visitors to-day (Friday) and on Saturday. The exhibition will close on Saturday for the transmission of the statues to Cardiff, where they will be formally inaugurated as public possessions by Mr. Lloyd George in the autumn.

\* See illustrations.

## NOTES AND COMMENTS.

The protest of Sir James D. Linton, Mr. Augustus John, and Mr. Frank Brangwyn, through the medium of a letter to the "Times," against the appointment to the vacant directorship of the National Gallery of "a layman hitherto engaged in a profession having no connection with the arts" is natural in view of the fact that so far all keepers and directors of the National Gallery have themselves been painters. William Segnier, who was appointed keeper on the foundation of the Gallery in 1824—a son of David Segnier, well known as a dealer—studied under George Morland, and was a skilled restorer. Sir Charles Eastlake, who became keeper in 1843, and after a break the first director in 1855, was, like Sir Edward Poynter (director, 1894-1904), President of the Royal Academy. Thomas Unwins, R.A., who became surveyor of pictures to the Queen in 1845 and Keeper of the National Gallery in 1847, was a regular exhibitor at the Royal Academy. Sir William Boxall (director, 1866-74), who for long had full power to buy pictures without reference to the views of the trustees, enjoyed considerable popularity as a portrait painter. Sir Frederick Burton, who was director for the two decades, 1874-1894, prior to Sir Edward Poynter taking office, resigned his full membership of the Royal Water Colour Society in 1870 as a protest against the treatment of Burne-Jones. Both artists, however, were re-elected to honorary membership in 1888.

It is no secret that the "layman" is Mr. Robert C. Witt, by profession a solicitor, who has done much valuable work as one of the honorary secretaries of the National Art Collections Fund, and is said to possess the largest known private collection of photographs and other reproductions of pictures by old masters.

The eminent painters who make the protest urge that the essential qualifications for the director of the National Gallery "are of highly specialised and technical character, necessitating a knowledge and experience of pigments, mediums, processes, restoration, conservation, &c. Even the proper display of works of art is a matter of years of experience of colour juxtaposition, of pictures and backgrounds, lighting, framing, &c."

Now, in the first place there are very few professional artists who possess even the qualifications that the protestants consider essential. Artists, and especially great artists, are notoriously men without broad views, but of intense enthusiasm in one special direction. The National Gallery needs for its director one with broad-minded outlook, calm and impartial judgment, a wide knowledge of art, and a constant devotion to art, viewed from the public side, and thus entirely devoid of any trace of that partisanship which seems inseparable from the professional artist temperament. Hence, *prima facie*, the best director is not to be found amongst professional artists of high calibre, and if amongst such artists at all, then, like the best critics, as Disraeli said, amongst those who have failed in their art. A "layman," in short, is far more likely to be an ideal director than a professional artist.

In pursuance of the powers conferred upon him by the Defence of the Realm Regulations, the Minister of Munitions orders as follows:—

On and after the twentieth day of July, 1916, no person shall without licence from the Minister of Munitions commence or carry on any building or construction work—that is to say, the construction, alteration, repair, decoration, or demolition of buildings, or the construction, reconstruction, or alteration of railroads, docks, harbours, canals, embankments, bridges, tunnels, piers, or other works of construction or engineering. Provided that where the total cost of the whole completed work in contemplation does not exceed the sum of £500, and the use of constructional steel is not involved, the licence of the Minister of Munitions shall not be required.

Provided also that where the work in question—

(a) is being or is to be carried out by or under contract with any Department of His Majesty's Govern-

ment, or is declared by any such Department to be a Government contract for the purpose of this Order, or

(b) is being or is to be carried out by or under contract with any local authority which has been authorised by any Government Department since the 25th of March, 1915, to borrow money in respect of such work, the licence of the Minister of Munitions shall not be required.

Provided also that where a first application for a licence under this Order has been made and is pending for the carrying on of work which has been commenced before the said twentieth day of July, 1916, nothing in this Order shall prohibit the carrying on of such work until the licence has been refused.

All persons desirous of obtaining a licence to commence or carry on any building or construction work as above defined for which a licence is required shall apply in writing to the General Secretary, Ministry of Munitions, 6 Whitehall Gardens, S.W., for such licence, and shall give full particulars of the description and locality of the work, the purpose for which it is intended and its estimated cost, and such further information as the Minister may require, and shall comply with any restrictions or conditions subject to which the grant of such licence may be made.

This order of the Minister of Munitions is not a further restriction on building as has been suggested by head-lines in the daily Press, but a clear definition of the position; which is, in short, that necessary building is permitted, unnecessary building is a luxury, and in the present concentration of the national effort, rightly forbidden. The Minister of Munitions takes the power to decide what is necessary, and what unnecessary building. But even luxury-building operations may go on if they do not entail an expenditure of more than £500, and the use of constructional steel is not involved.

Mr. James Sant, R.A., C.V.O., who passed away last week in his ninety-seventh year, was one of the fashionable Victorian painters who seems to have suppressed his best powers to a sentimentality necessary for his popularity, in reflection of the spirit of the age in which he lived. It is remarkable that his best work, from an artistic standpoint, dates from the latest years of a long life, and may be said to have commenced in 1906, when he was eighty-seven, and produced "The First Admission of Lady Fellows to the Linnean Society of London." Other works since then have shown high powers, not least in his self-portrait in the Royal Academy exhibition of the present year.

The triennial exhibition of the Arts and Crafts Society due last October was postponed to this year, and will be held in the galleries of the Royal Academy this autumn. As usual, it will be open to all craftsmen (and craftswomen) whose work includes artistic quality.

## ILLUSTRATIONS.

## THE ANTOFAGASTA STATION, CHILI.

This station was just started when the war came; but the dislocation of traffic and general upset of railway arrangements has indefinitely postponed completion.

The railway company was its own contractor for the main structure, Messrs. Higgs & Hill, of London, carrying out all work in the nature of fittings, joinery, &c. The building is in reinforced concrete, schemed by the Kahn Concrete Company, and the facing entirely in light-tinted faience ware by Messrs. Doulton.

There is no rain at Antofagasta, and the town therefore requires much cleansing; hence the adoption of a glazed surface for the building, as daily cleansing is simplified.

We shall give next week some detail drawings of the design.

The architect is Mr. Arnold Mitchell, F.R.I.B.A.

## WAR MEMORIALS.

THE exhibition of designs for war memorials arranged by the Civic Arts Association was opened on Monday afternoon at the R.I.B.A., Conduit Street, W., at a meeting presided over by Mr. Ernest Newton, A.R.A.

Mr. Ernest Newton, in a few preliminary remarks, said it was for us to see that the churches and homes of Great Britain were not disfigured by the erection of trade brasses and tablets which would dishonour the memory of our dead.

Sir Cecil Harcourt Smith, Chairman of the Executive Committee of the Civic Arts Association, said, thanks to the generosity of certain individuals and private firms, they had been enabled to offer a series of prizes for designs in eight different classes of memorials, and about four hundred designs or models had been sent in from all parts of the country. The exhibition would remain open to the public for twelve days, closing on July 29. It was hoped that arrangements would be made to send the specimens on exhibition to other important centres in the provinces, and it might be possible subsequently to form local branches of the Association in various parts of the country.

Dr. Arthur C. Benson (Master of Magdalene College, Cambridge) said one of the things for which, in a great time like the present—great for all its sadness and perhaps because of its sadness—he thanked God was that it had revealed, as nothing else could have done, the latent heroism of our nation. If only it could make us poets and cure us of being prophets! He had often been ashamed to the bottom of his heart of the cries of panic-mongers and crabbed pessimists, shrieking in our ears that we were a nation sunk in sloth, luxury, and indifference. All his life he had lived among the young, and if ever there was a thing of which he had felt certain it was that our youth was brave and modest and manly, as this long and bitter fight had daily and hourly proved. We were now confronted with the task of seeing that our dead were worthily commemorated, for our own sake and for the sake of those who come after us. It was not that he thought of a memorial as being in any sense a reward for the honoured dead. If there was one thing which his heart told him it was that they had a nobler reward than that. A new life, doubtless, a passing from strength to strength. But as Shelley so immortally said, "Fame is love disguised," and we owed it to our love and gratitude not only to remember but to commemorate. We must not do it idly or carelessly. We must take thought, have a plan and a purpose, and must not be in too great a hurry. Hurry was the worst foe of memorials. We had a national habit—he rather thought it was a sign of greatness—of not doing anything until we felt obliged, and the result often was a loss of grace and fineness, because people who must act and were a little ashamed of not having acted, accepted any solution. First of all, they must take careful thought where the memorials were to be set, so that these might be constantly and plainly seen, and then they must consider how the memorials might best fulfil the purpose for which they were intended, which was first to remind us and next to kindle the emotion of imagination. The next difficulty was that artistic instinct in England was not widely diffused; and the third was the deep-seated mistrust of the expert which existed in England, where he was often regarded simply as a man who let you in for a heavier expense than you had intended.

We had an ugly habit of combining, if we could, local utility with memorials. What we wanted was beauty, dignity, simplicity, and force. We wanted what appeals directly to the eye and then darts strong emotion into the heart—an emotion in which gratitude and hope are blended. He hoped most earnestly that we should not accumulate resources on one national monument to astonish tourists and to feed our vanity, but that as many places as possible would have a record of a great fact which had permeated our national life more deeply than

any historical event in the whole of our annals. It would be well if some Central Advisory Board could be established—a Central Authority could hardly be expected, and indeed would not even be desirable. The nature of the memorials should be carefully scrutinised. We were always weak in allegorical representation, and perhaps for that very reason we had a great fondness for it. With our taste for representing and explaining, and counting and cataloguing, our memorials became erected with every cornice loaded with figures like the painting described by Dickens of six angels carrying—with some difficulty—a stout gentleman to heaven in festoons. (Laughter.) We must fight shy of elaborate designs, because the pantomime of allegory at once began. He hoped that in our war memorials the prevailing notes would be simplicity, naturalness, and eloquence of emotion rather than of word. Let us try for once to express ourselves, not to cover up truth with turgid verdicts, but to say what we mean and what we feel as simply and emphatically as we could. We were not likely to forget the war, but what we might forget was that the result of it would be the outcome of modest, faithful, loyal service, done with no flourish or vanity by thousands of very simple, straightforward people, who did not argue themselves into indignation or reflect much about what they were doing, but came forward, leaving comfort and home and work and love without any balancing of motives, but just because they felt they must take their place in the battle of liberty and right with intolerable pride and aggression. That was the best and only proof of the greatness of a nation, that it should prefer death if need be to all the pleasant business of life. If this or any of this could be recorded, the nation would live, and the memorials of these dark and great days would stand to witness to our far-off sons and daughters that their old forefathers did not live to no purpose and did not die in vain.

The Bishop of Wakefield, moving a vote of thanks to Mr. Benson, remarked that they all hoped they would have the assistance and the cordial sympathy of the best hearts and brains that could be brought to bear in this matter when they came to put up their simple memorials in their village churches. Dr. Benson's inspiring address had awakened a great hope that at last our memorials might be more worthy of the occasion, more touching, and more appealing than many had been in days gone by. The Church of England would, he believed, cordially welcome the assistance and sympathy of the Association in the matter of putting up memorials in village churches.

## PRIZES FOR DESIGNS.

The following is the list of prizewinners for designs:—

*Class I.*—Design for the London County Council staff memorial.—First prize, £50, E. A. Rickards, F.R.I.B.A., and Henry Poole, R.B.S.; second prize, £15, Eric Gill, sculptor, and Charles Holden, architect; prize, £10, Allan Wyon and Stanley Ramsay.

*Class II.*—Design for a wall tablet in cast bronze.—First prize, £20, Eric Bradbury; second prize, £5, H. P. Gill and R. F. Wilson; prize, £5, Macdonald Gill; book prize, W. A. Robertson.

*Class III.*—Design for a wall tablet in carved wood.—First prize, £20, Thomas Rayson; second prize, £5, F. C. Eden; book prize, Walter John Brown.

*Class IV.*—Design for a wall tablet in marble or stone.—First prize, £20, Eric Gill; second prize, £5, Alec Miller; book prize, Mrs. Bernard Jenkin.

*Class V.*—Design for a simple wall tablet in wood.—First prize, £10, Tom Broadbent; second prize, £5, A. E. Martin; book prize, Thomas Rayson.

*Class VI.*—Design for mural painting for a boys' club.—First prize, £10, Gladys D. Davison; second prize, £5, Miss Elsie McNaught; prize, £5, Miss Lancheater.

*Class VII.*—Design for a fountain for a country town or village.—First prize, £20, Cyril A. Farey; second prize, £5, T. H. Morcom; prize, £5, Miss Helen Frazer Rock.



*Class VIII.*—Inexpensive memorials for the home.—Miss Muriel Perrin, Arthur Dix, Miss Lillian Frost, and James Guthrie (equal), £3 each; Miss Joan Kingsford, £1.

## CHESHIRE CHURCHES.\*

By F. E. HOWARD.

A BELT of fine building material stretches through the West Midland counties of England—the new red sandstone. Hereford, Worcester, Warwick, Shropshire, Staffordshire, Cheshire, and Lancashire abound in this magnificent stone—fine-grained, quarried in huge blocks, and of exquisite colour, ranging from a greyish-green cream to a deep brown-red. It is true that it is deficient in weathering qualities, particularly in towns, as compared with the best of the English limestones, but the beauty of its colour and the dignity imparted to the building by the great size of the blocks more than atone for its lack of permanence.

The churches of this great tract of country have many points in common, due to the peculiarities of the stone, but they readily fall into local groups—of which the churches of West Cheshire form one of the most striking and interesting. It is with a few churches of this group that I intend to deal in this paper. A word may be said as to the local surroundings of these churches. Though the county is rather low-lying, the greater part of it is decidedly hilly, and the villages are, as a rule, built on the top of the little hills rather than in the valleys. A part of the county around Chester itself is flat and marshy, and here again the villages are built on the high ground. The churches are almost always perched on the highest ground of all, dominating the village, and the churchyard is usually more or less surrounded by a sunk road some feet below the level of the churchyard, which is enclosed by a wall of great sandstone blocks, with a weathered coping, very frequently mediæval. In very many cases dignified eighteenth-century flights of steps rise from the road to the churchyard, and the gates—sometimes of elegant wrought-iron work, as at Malpas—are often flanked by stately stone piers of the same date. The most common type of monument, a great flat stone, slightly raised on three slabs, table-wise, is very numerous—some churchyards, such as Frodsham, are practically paved with them. The mediæval crosses are almost all destroyed, and very charming Georgian sun-dials have taken their place. Nearly every church in Cheshire possesses a sun-dial of this kind.

The problems with which the sandstone builders had to deal were totally different from those in most other parts of England. They had at their command an abundance of easily worked stone, readily quarried in great blocks. Consequently, rubble walls are practically unknown, and walls are faced inside and outside with beautiful ashlar. Of course, the Norman masonry is in smaller blocks and wider jointed, but gradually the size, particularly the length, of the blocks and the perfection of the jointing increased. Such stone could be re-used in enlargements, and, indeed, the re-use of old doorways, arches, or windows in almost total reconstructions is quite a feature of mediæval Cheshire building—and a very puzzling one for the antiquary painfully trying to elucidate the history of the fabric. But this beautiful material is unreliable as to weathering qualities, being composed of fine hard grains of sand with very little cohesion, as compared with a good limestone. Tours-de-force in the way of undercut mouldings were inadvisable, and the fewer the sharp angles or projecting cusps the better. Thus the preference for obtuse angles and bold convex moulding arose. They may not be so attractive as the elegant forms of East Anglia or Northants, but they are eminently suited to the material. In colour the sandstone varies greatly—at Budworth and Witton it is a deep brown; at Weaverham and Over a beautiful soft

red; at Bebbington a warm grey; and there is an infinite variety of intermediate shades.

For roofing two local materials were ready to hand: the small, rough grey Welsh slates, now superseded by the huge, square, shiny abominations which modern science has made so cheap; and the sandstone slabs of the district. These have rarely survived, but may be admired on the roof of the north transept of Budworth. They are less interesting than the limestone slates of the Cotswolds, and they vegetate more evenly, but the effect of the thick green slabs crowning the red sandstone walls is very satisfactory. Lead was very commonly used in the later Middle Ages—whence it was obtained is somewhat of a mystery.

Domestic building in Cheshire was almost invariably in half-timber. Sometimes this method of construction was applied to churches in the east of the county. At least four examples have survived, Marton, Warburton, Peover, and Siddington, and there were once many more, but it cannot be regarded as a usual manner of building in the county. The churches themselves afford admirable examples of the struggle between the West of England type of parish church, as found in Devon, Cornwall, and Wales, and the normal English type of the Midlands—or rather, between the Celtic and the Saxon ideals of parochial church building.

The early Welsh churches were for the most part long and low, with continuous nave and chancel of equal width, undivided by a chancel arch, and when aisles were added in later times these were also low, but were roofed by a gable like that of the nave, and were of almost equal width. Such churches in various stages of development are very numerous in the Welsh counties adjoining Cheshire.

It seems likely that this simple type of plan was native to Cheshire before the Conquest, but the Norman lords engaged in the subjugation of Wales introduced the more usual type with the narrow chancel, communicating with the nave by a chancel arch—as at Shocklatch. They even introduced clerestories, which were probably unknown before—as in the grand nave of Frodsham with its stately arcades. This church would have had low lean-to aisles of no great width. But it does not seem that the cruciform plan was introduced. At least I know of no examples earlier than the fourteenth-century plan of Nantwich, though there are indications that the Norman church at Bebbington had a central tower, and may have possessed transepts.

After the Norman period, the Midland characteristics of plan were gradually abandoned and the West of England influence reasserted itself. Norman nave-and-chancel plans such as Shotwick were converted into the West of England type by pulling down the chancel arch and rebuilding the chancel the same width as the nave. Often, however, a chancel arch was retained, but widened and made to interfere as little as possible with the view into the chancel, as at Frodsham, where some of the old Norman stones were re-used in the pointed chancel arch. At Bunbury (fourteenth), Malpas (fourteenth), Great Budworth (fourteenth), also the chancel arch was retained. But the nave and chancel were of the same width, and equal or nearly equal in height.

There is very little evidence to show what the Cheshire parish church of the twelfth or thirteenth century was like, beyond the fact that it was normally low, with continuous nave and chancel. Whether the aisles were narrow and lean-to, as in the Midland churches, or whether they were more often wide and gabled as in the later Cheshire churches, it is impossible to say. One church at least—Acton—was provided with an enormous western tower of the type familiar all along the Welsh border—wonderfully strong, and probably intended as a place of refuge for the parishioners in case of a raid by the Welshmen. Eastham, though cruelly restored, perhaps gives the truest impression of the Cheshire church of this date, with its wide and low arcades, its long chancel, and north chapel. But the effect is obscured by the unnecessary addition of a

\* A Paper read before the Royal Archaeological Institute.

modern clerestory. Astbury, in East Cheshire, retains much work of the late thirteenth century, but has been so entirely transformed in the fifteenth century that it is difficult to imagine it in its original form with three parallel gabled roofs, stretching from east to west of the building—a true and perfect type of the West of England parish church.

Fortunately there is no lack of evidence for the plan of the normal fourteenth century church of Cheshire. The smaller churches were evidently of almost pure West Country type—without chancel arches, and with wide gabled aisles, usually continued to the east end of the chancel. The Norman church of Shotwick was altered to this type in the fourteenth century, while Weaverham and Over, now transformed into Perpendicular, show evident signs of having passed through this stage of development. The larger churches—Witton, Great Budworth, Malpas, and Bunbury—appear usually to have had long unaisled chancels at this date, possibly added at the east end of older churches with continuous nave and chancel.

Save for the architectural details—and Cheshire can show some fine curvilinear work—the fourteenth century church of Cheshire, with its low proportions and wide gabled aisles, was not unlike the familiar Devon church of a century later. But few possessed towers, though the west towers of Bunbury and Malpas—unfinished until the fifteenth century—are remarkably fine and massive with excellent west windows of flowing tracery. The spires of Bebbington and Eastham are also very fine examples for their date.

That curious and beautiful phenomenon, the cruciform chapel of Nantwich, must be mentioned here. It is the most important example of fourteenth century work in the county, and its vaulted choir is one of the loveliest buildings in England, but its regular cruciform plan and octagonal central tower are not products of the local tradition.

The extraordinarily long, north transeptal chapel at Great Budworth is also exceptional, for transepts form no part of the normal Cheshire church. In this period a low gabled porch became a common feature, usually placed on the south side. These have generally been altered in later times—as at Bunbury—by the raising of the walls and the flattening of the roof, or by the addition of a second storey.

The fifteenth century produced what may be regarded as the most typical form of English parish church—straightforward and practical as to plan and construction, to suit the national character, and well-lighted to suit our climate. I refer to the plan with continuous clerestoried nave and chancel, flanked by wide aisles extending from end to end, of which one of the earliest examples is St. Nicholas, King's Lynn, and one of the most beautiful the parish church of Southwold. The credit of evolving this type does not belong to Cheshire, but it was accepted by the fifteenth-century builders of that county as the model for practically all rebuildings of the period. It was usually impossible in a moderately prosperous county like Cheshire to carry out a complete transformation, but all alterations and improvements tended in its direction, though the ideal, as a matter of fact, was never attained in any single church.

The process had to be carried out by degrees, and the methods varied in different cases. Sometimes the work of transformation was started by the re-modelling of the aisles, heightening the walls, inserting larger windows, and adding buttresses to compensate for the loss of strength, as at Bunbury. In other parts of the country this was a period of aisle widening, but Cheshire aisles of the fourteenth century were usually so wide that the fifteenth century builders simply raised the walls, without rebuilding them down to the foundations. An important change was the substitution of flat roofs for gables, in order that the clerestory windows should not be obscured. This process of remodelling may be clearly traced in the aisles of Malpas. The transformation of the aisles naturally led to the rebuild-

ing of the arcades, which were usually excessively low, though at Great Budworth and Witton, where the old arcades were exceptionally lofty, they were retained. At Malpas the old arches were reused on taller piers, but there are distinct traces of the spring of the former low arcade in the north-east respond. Similar traces of an older and lower arcade remain at Bunbury and Over, at the west end of the present lofty arcades of the fifteenth century.

The final step in the fifteenth-century remodellings was the addition of the clerestory of which Malpas is one of the most satisfactory. Often the chancel remained untransformed so long that the Reformation put an end for ever to the noble aims of the mediæval builders. Evidently the means of the Rector or the impropriating monastery were inferior to those of the parishioners. But several unaisled chancels were transformed indirectly by the addition of chapels on either side, as at Great Budworth. The insertion of a new east window then completed the transformation, except the addition of the clerestory, which was rarely built, though it is certain that the intention of the builders in most cases was that the clerestory should eventually run continuously from one end of the church to the other.

In curious contrast to the normal process of transformation the great church of Lower Bebbington offers an example of an ambitious rebuilding started from the east end and carried westward one bay down the nave. The church was originally an aisled Norman building, and retains its old arcades. Wide gabled aisles with a massive spired tower at the west end of that on the south were added in the fourteenth century. In the rebuilding all the extreme inaccuracies of setting out were corrected. Strongly buttressed aisle walls with huge windows and fine arcades with a blank triforium storey, such as may be seen at Astbury, were built, but the clerestory was never erected and the church was roofed temporarily with parallel gables, now renewed and altered. A curiosity in the planning is the pseudo-crossing, curious because it appears to be intended for internal effect only, for the walls are too thin to carry a tower. It is a calamity that the completion of this fine structure should have been prevented by the Reformation, but to the archaeologist the spectacle of so magnificent a scheme, brought to so sudden a full stop, is full of interest. At Bebbington we find perhaps the only example of a perfect co-relation between the bays of the aisle walls and the arcades. In other examples Cheshire builders cared little about making their bays correspond, for the simple roofing system adopted did not call for exact correspondence between bay and bay.

Another exceptional process of fifteenth-century remodelling may be seen at Astbury, where the process started from the inside and proceeded outwards, instead of from the outside inwards, as in the generality of Cheshire churches. The church appears to have been built in the late thirteenth and early fourteenth centuries, and consisted of three parallel gables, covering the nave and aisles. The work was of good design for its period, and was solid and well built, but the church must have been low and gloomy, compared with the building in its present form. The late fifteenth-century remodelling consisted of a complete rebuilding of the arcades and the addition of a lofty and airy clerestory, almost entirely consisting of glass, and the insertion of huge windows in the end walls. At the same time the gabled roofs of the aisles were removed in favour of handsome flat panelled ceilings, so that the clerestory should catch all the light possible. No doubt, had the Reformation not intervened, the north and south walls of the aisles would eventually have been altered to correspond with the beautiful clerestory. The old windows would have been removed in favour of larger ones, the spacing of the bays would have been adjusted to correspond with that of the arcades and boldly projecting buttresses would have been added as at Malpas.

(To be concluded.)

### THE L.C.C. AND ARTERIAL ROADS IN GREATER LONDON.

THE Improvements Committee of the London County Council submitted on Tuesday last the following report on the subject of Arterial Roads, and it was adopted by the Council:—

The Prime Minister and the President of the Local Government Board have been asked to receive, on or about July 22, 1916, a deputation from the second main conference on arterial roads in Greater London in support of resolutions passed at that conference on May 19, 1916. These resolutions, which are set out below, seek recognition for the findings of the conference as to suitable routes for arterial roads. As the Council is the central authority for the planning and execution of street improvements in London, we feel it our duty to report as to the bearing of these arterial road proposals on the duty and policy of the Council in connection with road improvement in London.

As the Council is aware, as the result of deputations to the Prime Minister, on July 3, 1913, from various local authorities and associations, the first main conference of local authorities and others interested in the improvement of arterial road communication in Greater London was held on November 25, 1913, the President of the Local Government Board (the Right Hon. John Burns) presiding. Sectional conferences were subsequently held, and the results of their deliberations are published in a summary report adopted at the second main conference. The roads recommended to and approved by the main conference are shown in purple colour on a plan which will be exhibited in the lobby of the Council chamber. Some short lengths of road extend beyond the area shown on this plan. The proposals for improvement within the County of London are relatively few.

The resolutions passed at the second main conference are as follows:—

(1) That in view of the vital importance of securing the harmonious development of Greater London by carrying into effect carefully considered schemes for the construction of new arterial roads, and more especially, in view of the opportunity which will be afforded by the construction of such roads for the profitable employment of surplus labour in any period of unemployment which may arise after the war, this Conference, in submitting to the Prime Minister and the President of the Local Government Board the conclusions of the sectional Conferences, desires respectfully to make the following suggestions:—

(a) That all practicable steps should immediately be taken to induce local authorities to secure the reservation of the necessary land for such roads by the exercise of their powers under the Housing, Town Planning, &c., Act, 1909.

(b) That in order to encourage and aid local authorities in thus exercising their town-planning powers, thereby securing that the projected roads shall be provided at a minimum of cost, the Government should, by means of co-operation between the various Departments of State and the county authorities concerned, arrange that local authorities preparing town-planning schemes for their respective areas, and including in these schemes the projected arterial roads, shall be given a guarantee that a considerable portion of the cost shall be borne by a central authority.

(2) That having regard, not merely to the large amount of time and trouble that has been expended in the consideration and selection of suitable routes for arterial roads in Greater London, but to the extreme urgency of preserving the opportunity for creating the arterial roads which have been found by these Conferences to be necessary, and to the important part these traffic avenues will play in the future development and growth of the Metropolis—this Conference is desirous of recording its opinion that it is imperative that steps should be immediately taken, through the Local Government Board or other authority, to secure the routes of such new or improved thoroughfares as are set forth in the important traffic proposals contained in the report of the Conference on arterial roads in Greater London.

(3) That the Prime Minister and the President of the Local Government Board be asked to receive a deputation to present the report summarising the conclusions of the six sectional Conferences, the report of the sectional Conferences, and the resolutions passed at the second main

Conference, and that the members forming the Sub-Committees of the sectional Conferences be and hereby are appointed a committee to arrange the details of the deputation.

The Council's general policy in the past with regard to road improvement has been necessarily in the direction of improving existing means of communication; improvements being carried out as far as possible as and when favourable opportunities occur, so that the maximum of benefit may be obtained at the minimum of cost. The main consideration with the Council appears always to have been the degree of benefit to be conferred on the general through traffic, due regard being paid to the need for improving main roads leading out of London into adjacent districts. The County of London contains but a small proportion of undeveloped land, so that schemes for new roads of considerable length could be undertaken only at a cost which would probably be considered prohibitive.

The Council has been compelled, in the absence of new sources of revenue, to postpone many schemes for improvements urgently necessary for the accommodation of the traffic in various parts of London. The establishment of the Road Board under section 7 of the Development and Road Improvement Funds Act, 1909, opened up a not unreasonable prospect of financial assistance to the Council in the discharge of its duties in connection with road improvement in London, the Council being specially included among the authorities which may make applications under this Act. In order that the attention of the Board might be directed to the urgent claims of London, the Council, in October 1910, authorised us to negotiate generally with the Board with the object of obtaining advances under the Act. The Board having suggested a scheme for a new western approach road to London, the Council decided, without prejudice to that scheme, to ask the Board whether it would be prepared to co-operate with the Council in the execution of other improvements of greater value to the traffic of London, including pressing street improvements in the county of London. The Board, however, expressed the view that schemes of widening urban streets congested mainly with local traffic were not fairly within the scope of the Road Improvements Fund, and that it observed that the schemes put forward by the Council appeared to fall within that category. The Board was asked, in February 1914, to state when it anticipated that any portion of its funds would be available for street improvements in the county of London. In the autumn of 1914 our Chairman (Mr. Andrew T. Taylor) received from the Chairman of the Board (Sir George Gibb), at an interview, a promise of a considerable grant towards the cost of the proposed main road from the city and east end of London to the western boundary of the county of London by way of the Euston and Marylebone roads. It may be a question whether, in the altered circumstances, any difficulty may arise in connection with the fulfilment of this promise. So far there has been no definite reply to the communication addressed by the Council to the Board in February 1914.

The position of the Board was inquired into by the Committee on Retrenchment in the Public Expenditure. In their first report the Retrenchment Committee recommended that the activities of the Board should be suspended during the war, and that the proceeds of the taxes earmarked for the service of the Board should be retained in the exchequer. The latter part of the recommendation was given effect to by a clause in the Finance (No. 3) Act, 1915. It was suggested in the final report of the Retrenchment Committee that the amalgamation of the Road Board with the Local Government Board deserved careful consideration. The London Traffic Branch of the Board of Trade, whose function was that of an advisory body, and which has from time to time made recommendations for street improvements, has been discontinued, and the papers and documents transferred to the Local Government Board. It would appear, therefore, that the Local Government Board is the



Government department which will deal in the immediate future with all questions of street improvements.

At the second main conference on arterial roads, the Right Hon. W. Hayes Fisher pointed out the great difficulties in the way of financial assistance from the Government under the altered conditions arising from the war; and we have no grounds for supposing that there is any lack of appreciation of the difficulties and delays which may arise owing to financial stringency, perhaps for many years to come. It is necessary, however, to note that the sectional conferences have re-appointed their sub-committees, in most cases with the reference that they may consider the best means of carrying out the approved routes, and most of the sectional conferences have resolved in favour of preliminary estimates of the cost of the proposed improvements being obtained as soon as possible so that, *inter alia*, in the event of unemployment following the war, information as to useful outlets for labour may be readily available. Moreover, plans of the approved routes have been prepared by the conferences to the  $\frac{1}{25,000}$  scale, and it is suggested that these plans should be kept as a record at the offices of the Local Government Board, where from time to time enlarged scale details may be added if necessary. Four of the sectional conferences passed resolutions that they were of opinion that powers should be given to county councils, after consultation with the local authorities concerned, to prescribe building lines to existing roads, subject to appeal to the Local Government Board. One out of the four conferences restricted the reference to existing "main" roads and another to existing roads "to the maintenance of which they (the county councils) contribute, or to any other roads approved by the Arterial Road Conferences." The resolutions do not exactly define the nature of the powers that are thought desirable, but the purpose of the recommendations as disclosed by the discussions is that the restrictions contained in the Public Health (Buildings in Streets) Act, 1888, as to bringing forward buildings in any street in urban districts, should be made generally applicable in rural areas, and that the county councils are in a better position to take a comprehensive view of the requirements for a long length of road than are the smaller authorities through whose districts only short sections run. The expression of opinion was confined to existing roads, as it was intended to apply particularly to land already built upon, to which the Town Planning Act does not generally apply. The general feeling in those conferences which adopted the resolution was that where buildings fronting a narrow road were likely to alter in character and be rebuilt, it was desirable that a building line should be fixed, so that the local authority and the owners should have a settled policy in regard to widening, and new buildings would not be erected in a position which would entail their future demolition. These points are stated for the purpose of indicating the directions in which, in the opinion of the conferences, there may be activity in the near future with the object of securing the routes proposed by the conferences.

For the purposes of this report we have not felt it necessary to examine in detail the proposals of the conferences in regard to new roads within the County of London.

The formal presentation of the recommendations of the conferences to the Prime Minister and the President of the Local Government Board may be regarded as involving some measure of acquiescence on the part of all the authorities represented at the conferences. So far as the Council is concerned, in the absence of an expression of its views, it might be considered that the Council had withdrawn from the position it took up with the Road Board on the subject of road improvements, and had accepted the conclusions of these conferences as constituting a programme having prior claim on its attention in connection with road improvement and development in London.

In order to safeguard the Council's position, both for preserving freedom of action for the future and also for

maintaining a claim on any Government fund for aid towards the cost of urgently needed London improvements, we consider that the views of the Council should be made known to the Prime Minister and to the President of the Local Government Board, if possible before July 22, 1916.

Whilst reserving our opinion as to the best methods for determining routes for arterial roads, and the actual routes for such roads, we are in general agreement with the principle of a far-sighted policy of reservation of routes before land is built on or values enhanced. There are, however, very serious objections to the determination, long in advance of realisation, of schemes for new roads if they obtain publicity. No authority in Greater London has had experience, comparable with that of the Council, of the difficulties which arise, and the increased expense involved, if opportunity is afforded for the creation of new interests and the inflation of values in anticipation of improvement schemes being carried out.

If the schemes for arterial roads are proceeded with, the Council will probably be expected to contribute, and in view of the probable heavy cost involved the Council's co-operation as one of a number of authorities in the execution of the schemes might involve the abandonment or postponement of improvements regarded by the Council as of greater urgency and necessity from the standpoint of the requirements of the traffic of London.

If the State, by assuming control of the preparation and determination of arterial road schemes, is also prepared to accept the financial responsibility for the whole or greater part of the expenditure, whether on capital or maintenance, there would be the danger that any money which the Government may be prepared to allocate in the future for the improvement of roads and road communication may be devoted towards the construction of the arterial roads recommended by the conferences, with the probable consequence that no new source of revenue will be available for the execution of the improvements to which the Council would attach greater importance.

If, even without assuming financial responsibility for the whole or greater part of the expenditure, a Government department approves and fosters the arterial road proposals of the conferences, the Council might be seriously prejudiced in its application to Parliament for sanction to improvement schemes in London, as it has been the practice in recent years for Government departments, including the Local Government Board, to present to committees of Parliament reports upon bills without supporting such reports by evidence which can be cross-examined.

We recommend:—

(a) That, in connection with the proceedings of the conferences on arterial roads in Greater London, the Council, whilst in general agreement with the principle of a far-sighted policy of reservation of routes before land is built on or values enhanced, reserves its opinion as to the best methods for determining routes for arterial roads, and the actual routes for such roads, particularly in the County of London, where conditions are essentially different, as regards road-planning, from those obtaining in neighbouring counties, and also reserves its opinions as to the relative importance and urgency of the proposed arterial roads within the County of London in comparison with other road improvement proposals affecting the county; and confirms the views expressed by it to the Road Board on the subject of London improvements and of grants in aid of such improvements from new sources of revenue.

(b) That the foregoing resolution and the report dated July 12, 1916, of the Improvements Committee be transmitted to the Prime Minister and to the President of the Local Government Board.

With reference to the request made to Mr. Asquith and Mr. Walter Long to receive this week a deputation from the Second Main Conference on Arterial Roads in Greater London, in support of resolutions passed at that conference on May 19, it is understood that the Prime Minister will not be able to receive the deputation, but that Mr. Walter Long will probably do so. No date has yet been fixed for the conference.

## THE OPEN SPACES OF LONDON—PAST, PRESENT, AND FUTURE.\*

By LAWRENCE CHUBB.

(Continued from last week.)

WANDSWORTH COMMON was dealt with on somewhat similar lines to those which ensured the safety of Wimbledon Common, though without the rating provisions. In consideration of an annuity of £250, the interests of Lord Spencer were conveyed to a board of conservators, to be afterwards transferred to the Metropolitan Board of Works, and subsequently to the London County Council.

This open space is an object-lesson of the manner in which commons suffered in past days. It is now 175 acres in extent, but until 1782 had more than double that area. Constant encroachments took place for private or semi-public purposes, the last being the enclosure after the Crimean War of sixty acres to form a site for the Royal Patriotic Society's schools, the commoners having generously surrendered their rights in order that this might be accomplished. Twenty acres of this land were bought back three years ago and added to the Common at a total cost of £12,000. The girls' school, it is interesting to note, is at present in use as the 3rd London Base Military Hospital.

This Common, too, was cruelly used by the London, Brighton and South Coast and London and South-Western Railway Companies, whose disfiguring lines were allowed to cut it up into disjointed blocks, gravely interfering with its utility as an open space. Railway companies have, indeed, much to answer for, since, in scores of cases, their lines would seem to have been deliberately planned to traverse the maximum quantity of common land. Such harmful attacks were carried out with impunity until the Commons Preservation Society fought the private Bills in Parliament, and, by defeating many injurious schemes, compelled railway companies to recognise that the risk of losing their Bills was too great if, in order to cheapen the cost of construction, their lines were planned in such a manner as seriously to injure commons. Every railway, water, and other private Bill now introduced into Parliament is closely scrutinised by the Society, which, thanks to general support from all political parties, has been the means of saving tens of thousands of acres of common land from appropriation.

Clapham Common, consisting of about 200 acres, in almost equal parts in the manors of Clapham and Battersea and Wandsworth, was, in the beginning of the nineteenth century, little better than a morass, till a local resident, Mr. C. Baldwin, used his influence to form a local committee to manage, drain, and plant it. In consequence of this it became one of the best ordered and most useful of the London commons, and, in 1877, it was placed under a regulation scheme, £18,000 being paid for the manorial rights.

The largest, and perhaps the crowning glory of London's pleasure resorts, is Epping Forest. This splendid reserve stretches from Wanstead Flats to Epping, an unbroken belt of thirteen miles of primeval woodland. Ancient clearings, softly carpeted with velvet-like grass and mossy glades, serve to emphasise the mystery of marvellous groves of pollarded horn-beams, or serve as a foil to groups of lordly oak and beech.

It behoves Londoners to remember that, had it not been for the courage, determination, and perseverance of a handful of citizens, Epping Forest, as we know it, would have followed the fate of Hainault and ere this have completely disappeared. The Forest is now 5,559 acres in area. Little more than 100 years ago it extended to 9,000 acres. By 1866 it had shrunk to less than 3,000 acres in consequence of repeated and illegal

encroachments, the worst of which had been committed by the then Rector of Loughton, who took in 1,300 acres at one swoop.

From time immemorial the inhabitants of the district had enjoyed the right of lopping the trees for firewood from St. Martin's Day, November 11, to St. George's Day, April 23. That is why the older trees are pollarded. In 1866 a labourer named Willingale, with his two sons, determined to exercise their right by cutting trees within the manor of Loughton. For this act they were imprisoned for two months with hard labour.

At this stage the Commons Preservation Society, led by Lord Eversley, intervened, and, having raised a guarantee fund of £1,000, commenced a suit in the name of Willingale for the purpose of testing the validity of the enclosures. The case dragged on and expenses multiplied, and again and again, as the annals of the Society show, it was only through the splendid generosity of the late Sir T. Fowell Buxton, and his brother, Mr. Edward North Buxton, and their friends, that it was found possible to continue their task.

Willingale died in 1870, and his death abated the proceedings. At this stage the City Corporation were persuaded to champion the public cause, as it was found that they were commoners in respect of their Cemetery Estate at Ilford. The Society's then solicitor, Sir Robert Hunter, was associated with the City Solicitor in the conduct of a fresh suit, and he fortunately discovered that, although nineteen manors touched Epping Forest, that land was in reality one great common, so that the commoners of every one of the nineteen manors had the right of turning out their cattle to graze in any part of the Forest, and not only in their own manor.

Before the suit came on for trial the Government propounded a scheme under which it was proposed that, of the 3,000 acres still open, 2,000 should be given to the lords of the nineteen manors, 400 by way of compensation to the commoners, and 600 to the public. This scheme was opposed by the Society and defeated.

The trial, which lasted for many weeks, eventually took place before the Master of the Rolls, Sir George Jessel, who decided that the manorial lords had no right to make enclosures, as the commoners had the right to turn their cattle on to the whole of the wastes of the Forest.

An arbitrator, the late Lord Hobhouse, was subsequently appointed under Parliamentary authority to decide questions with reference to rights and enclosures, and in 1882 his award was presented, terminating sixteen years of litigation and diverting the restitution of about 3,000 acres of common land which had been illegally appropriated.

Subsequently the City Corporation added Wanstead and Higham Parks, and its expense in safeguarding, purchasing, and enriching London's premier open space amounted to £293,252.

Its near neighbour, Hainault Forest, disappeared in 1851, when it cost no less than £42,000 to grub up 4,000 acres of magnificent woodland. Owing to the growth of East London, a scheme was formulated by Mr. Edward North Buxton in 1903 for buying back and vesting in the London County Council 805 acres of this former common, an apt illustration of the short-sighted policy of a past generation. The bare hills are being replanted under the care of the Council, and are rapidly recovering some of their former natural beauty.

To the City Corporation London is also indebted for other noteworthy acquisitions, for it holds for the public Coulsdon Commons, Burnham Beeches, and West Wickham Common.

The commons of the Manor of Coulsdon are about 347 acres in extent, and were not saved without a bitter fight.

They consist of fine stretches of down land, known as Riddlesdown, Kenley Common, Coulsdon Common, and Farthingdown, and the lord of the manor, Mr. Byron, after vainly endeavouring to secure their enclosure by an Inclosure Act, strove to enclose parts of the

\* A lantern lecture delivered before the London Society in the Hall of the Royal Society of Arts, Adelphi, W.C.

Commons, and impaired their utility by the wholesale removal of turf. An action brought against Mr. Byron by Messrs. Hall terminated in 1877 in another substantial victory. The enclosures were ordered to be abated, and the destruction of the surface of the Commons was restrained. The City Corporation subsequently acquired the manorial rights.

The saving of Burnham Beeches was accomplished in a very different manner. This weirdly beautiful open space is a common of 375 acres, and its ancient groves of beech trees form pictures of sylvan grandeur quite unequalled in any other part of this country. The common had long been included in the estate of the Grenvilles, and for a considerable time arbitrary acts of repression had been bitterly resented by the villagers, who had been accustomed to cut peat in the swampy parts of the common and firewood in its coppices.

In 1879 it was announced that the manor and the common were to be submitted for sale at auction, and expectations were held out that the purchaser would be able to enclose. A deputation of leading members of the Commons Society and the Kyrle Society waited upon a Committee of the City Corporation to urge that they should add to their good work by acquiring Burnham Beeches. It was accordingly bought by Sir Henry Peck and transferred to the Corporation for the sum of £6,000, or less than £20 per acre.

In the meantime the last of the series of great suits with reference to the Metropolitan commons had been commenced. This affected Banstead Heath and Down, Park Down, and Burgh Heath, which, in the aggregate, comprise over 1,300 acres of breezy Surrey downland. Sir John Hartopp, the lord of the manor, warned by the result of earlier actions, set to work to buy out the rights of the commoners, expending over £18,000 on this object. In 1876 he deemed his position so secure that he commenced enclosing parts of the Heath and erecting houses on the Downs. A local committee was formed under the direction of the Commons Society, and two of its members, Mr. Robertson and Mr. Fletcher, as freeholders, with two copyholders, agreed to allow their names to be used for the purposes of legal proceedings.

Litigation of this nature is notoriously slow, and in 1884 Sir John Hartopp's solicitors became insolvent, dragging down in their ruin their unfortunate client. Two ladies who had advanced £31,000 upon the manorial property now took possession and the suit was revived against them.

In 1886 a decision was obtained restraining the lord of the manor from enclosing or destroying the pasturage of the commons, but questions of fact were left to a referee to determine. It was established that, notwithstanding Sir John Hartopp's efforts to extinguish the rights of the commoners, he could not show that sufficient common remained to supply the needs of the commoners' cattle.

The decision was upheld by the Court of Appeal, and finally, in 1893, after a fight which had lasted seventeen years, the commons were placed under regulation by means of a scheme under the Metropolitan Commons Act.

This was followed in 1893 by a notable victory in Parliament, when the Society succeeded in carrying the law of the Commons Amendment Act, which greatly restricted the power of manorial lords to enclose commons under the authority of the Statute of Merton. It was provided that no such enclosure should take place in the future without the consent of the Board of Agriculture, a department which shows a wide discrimination in the public interest when applications to enclose commons come before it. To the Board of Agriculture the community is immensely indebted for an enlightened policy.

Mitcham Common, another of the large Metropolitan pleasure grounds, is 570 acres in extent, and has also been the cause of much litigation both in regard to encroachments and as to the rights of the members

of a golf club to play golf over part of it. It was regulated in 1891.

Peckham Rye and Park are also popular resorts. The Rye was purchased subsequent to a claim before a Committee of the House of Commons in 1865 by the lord of the manor that it was his private property, free from any rights of common, and that he was entitled to enclose it and build over it.

(To be continued.)

## OBLIGATORY TOWN PLANNING.\*

### (1) THE CASE.

By HENRY R. ALDRIDGE, Secretary, National Housing and Town Planning Council.

### (2) PROVISIONS WHICH SHOULD BE MADE OBLIGATORY.

By COUNCILLOR HAROLD SHAWCROSS, J.P., Chairman, National Housing and Town Planning Council.

(Continued from last week.)

#### (1) THE CASE FOR OBLIGATORY PLANNING.

It is estimated that the local authorities of Great Britain have had to pay an aggregate sum of £25,000,000 in the last fifty years as a result of the lack of foresight and power in regard to the proper planning of roads. There can be no doubt that a similar waste of public money will ensue if a great increase in the traffic of rural roads finds local authorities unprepared with proper schemes of development, and if no steps have been taken to secure proper building lines on existing country roads so that all future buildings on such roads shall be set back at a sufficient distance from the centre of the road to allow future road widening to take place without the removal of costly buildings. It will also be difficult to fix the direction of new roads unless all authorities are compelled to make plans for their districts. A new road will often be required to pass from the area of one authority across that of another, and unless both co-operate in this it will be impossible to fix the position of such a road.

The need for the exercise of care in regard to housing development is equally important. It has been estimated that in order to meet the housing needs of rural districts in England and Wales from 100,000 to 120,000 new cottages are needed, and there can be no doubt that a period of cottage building in rural areas on a large scale is now beginning.

The experience of Ireland in regard to the building of cottages under the Irish Labourers Act is that, whereas at first the cottages were built near to the farms on which the men were employed, the cottages in recent years have been built in village groups. This will doubtless be the experience in this country, and here, as in Ireland, the need for care in grouping will be recognised. To build ugly streets of houses in long rows of an urban type will be to commit a blunder of the worst kind. It will of course be necessary to exercise great economy in road construction, but as land is cheap a good set-back can be provided, and an effort will be made to give a pleasing impression to those visiting the villages in which they are built.

In the case of housing schemes carried into effect by local authorities this can be done without any special town planning powers, but apart from the exercise of town planning powers, local authorities have no effective control of the lay-out of areas developed by private enterprise, and for this reason action in regard to planning will be found to be necessary. In such cases the term "town planning" is quite misleading, and some such term as "village planning" should be substituted.

In those villages in which there is no village green or

\* A Paper prepared for the forty-third Annual General Meeting and Conference of the Institution of Municipal and County Engineers at Blackpool on June 29 and 30 and July 1.





FIG. 1.

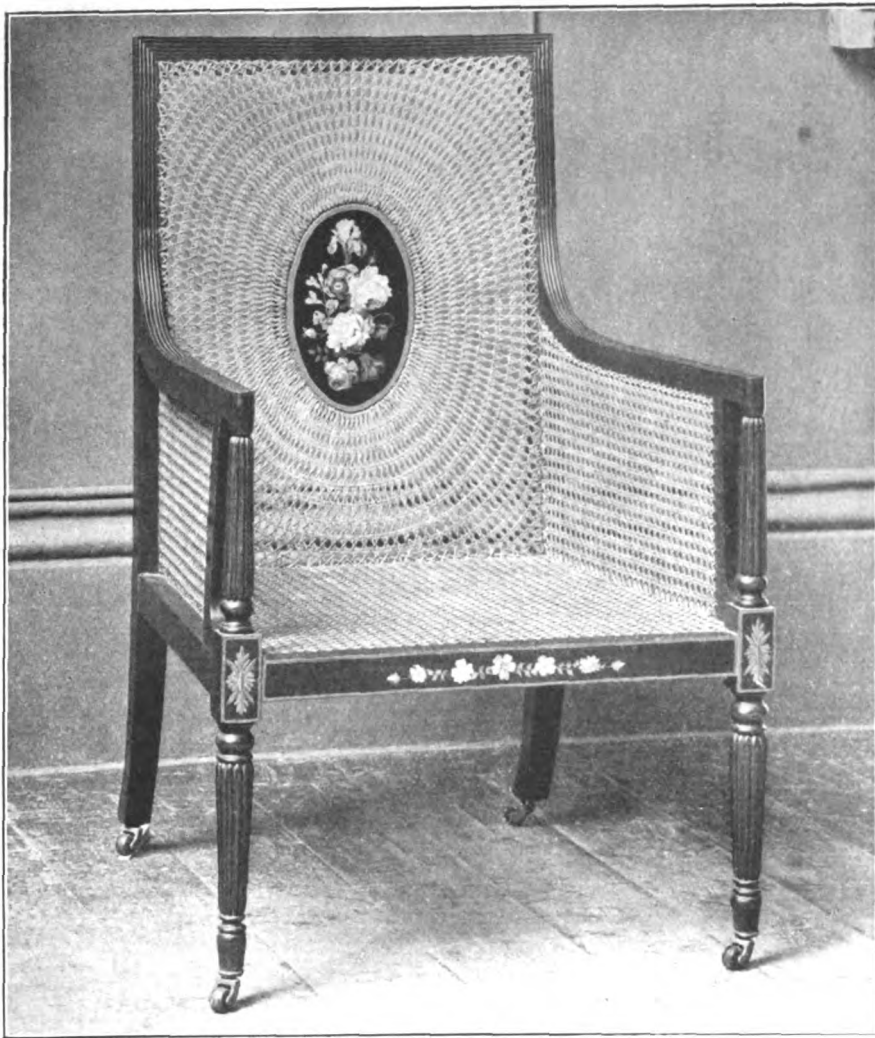
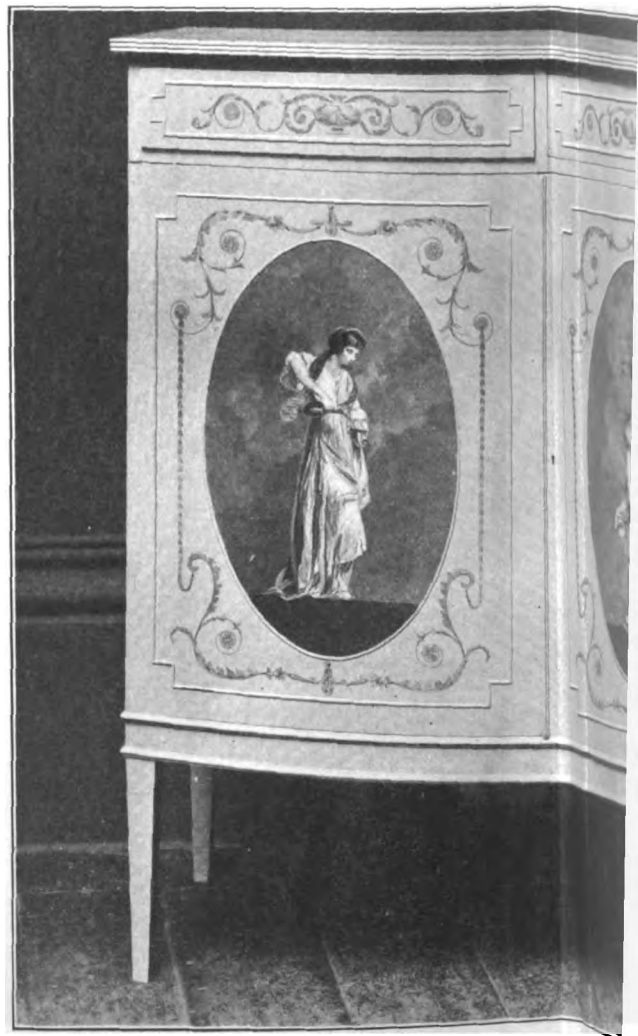


FIG. 2.



PHOTOGRAPHS BY JOHN AVERY & CO., LONDON.]

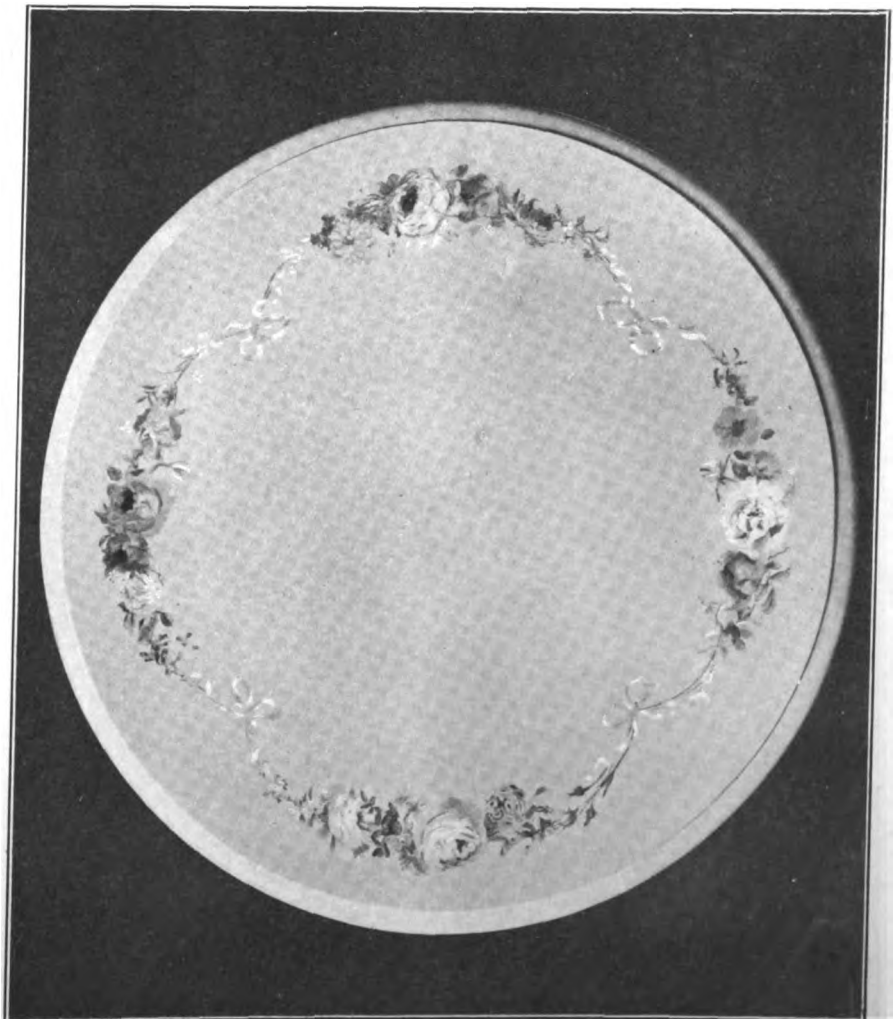
FIG. 4.

FIG. 5.

FIG. 2.



FIG. 3.



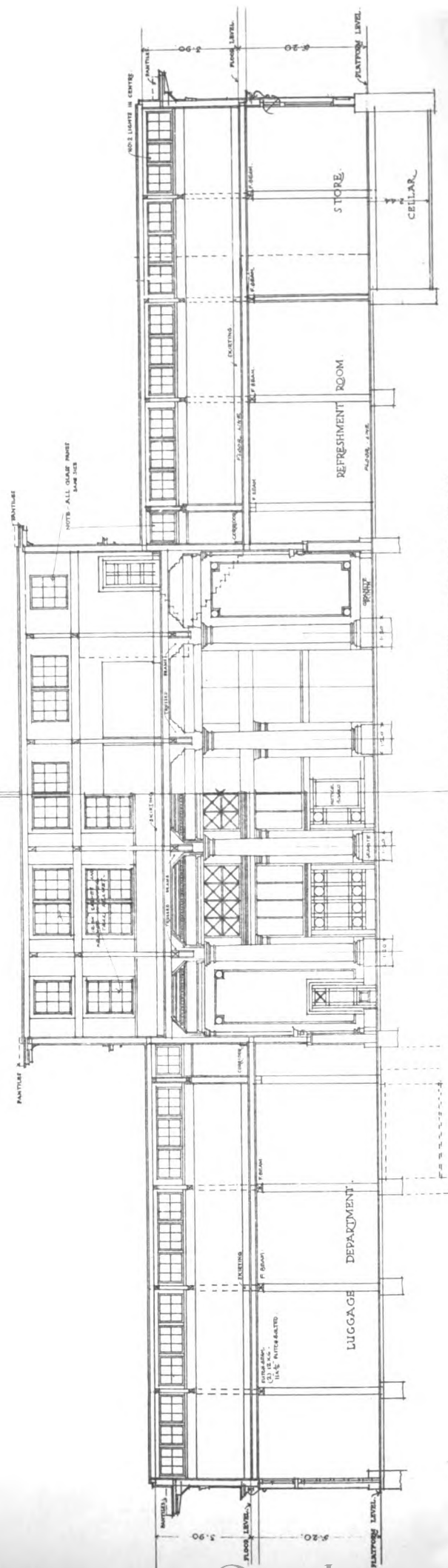






The Architect, July 21st 1916.

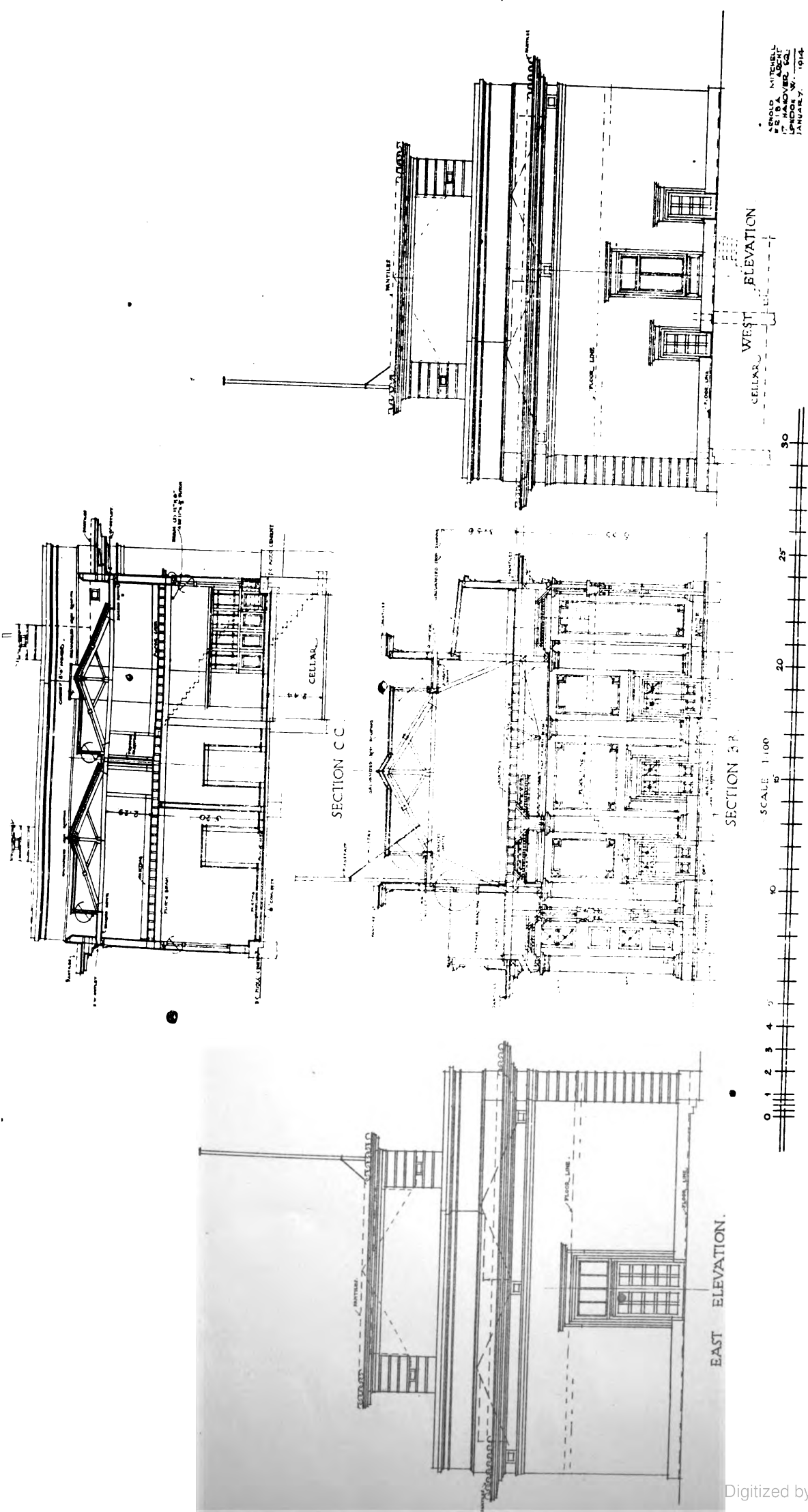
F.C.A.B.  
The Station North Yard  
ANTOFAGASTA CHILI

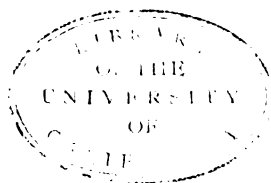


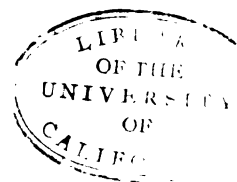
HALF SECTION TOWARDS FRONT. HALF SECTION TOWARDS BACK.





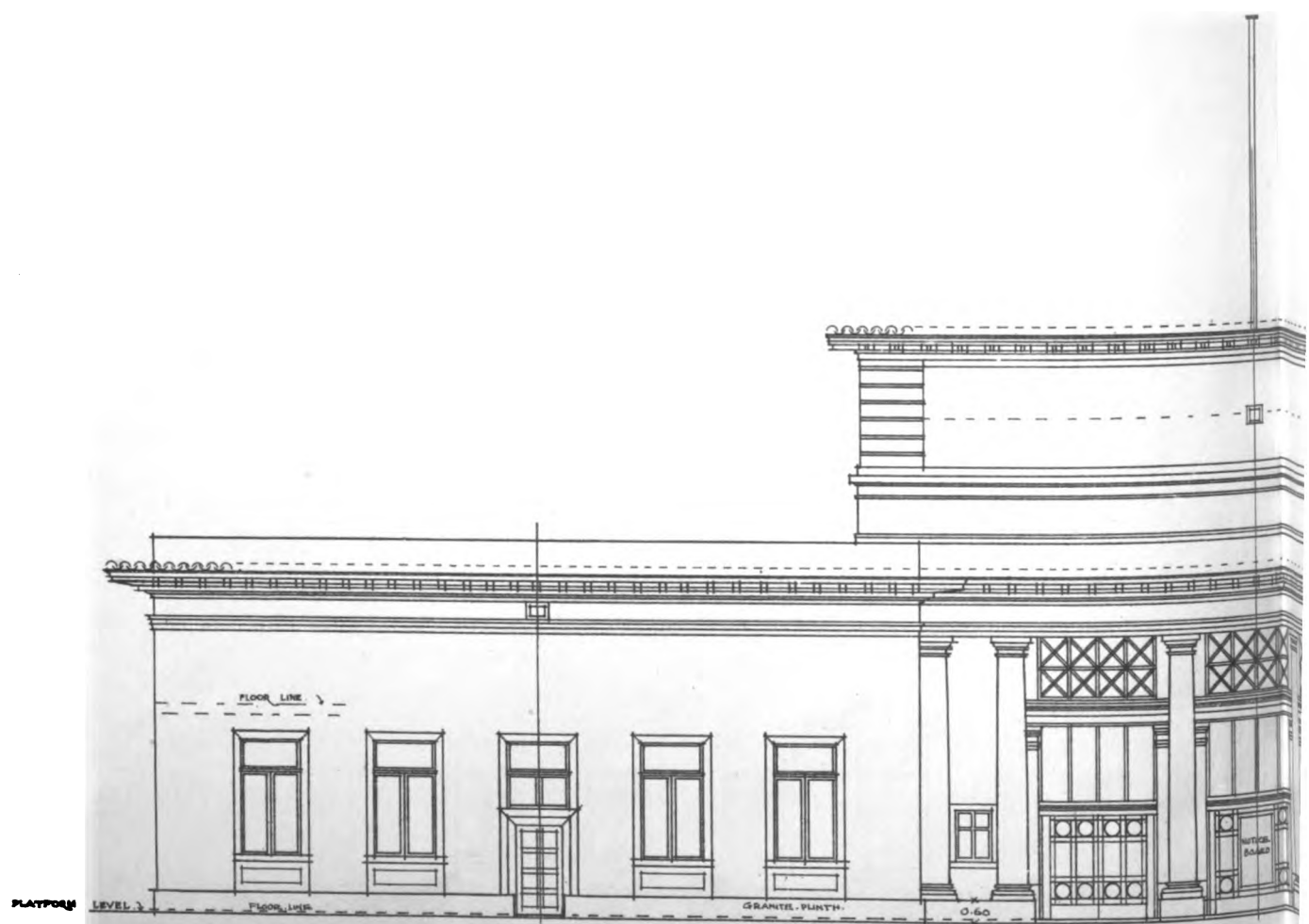
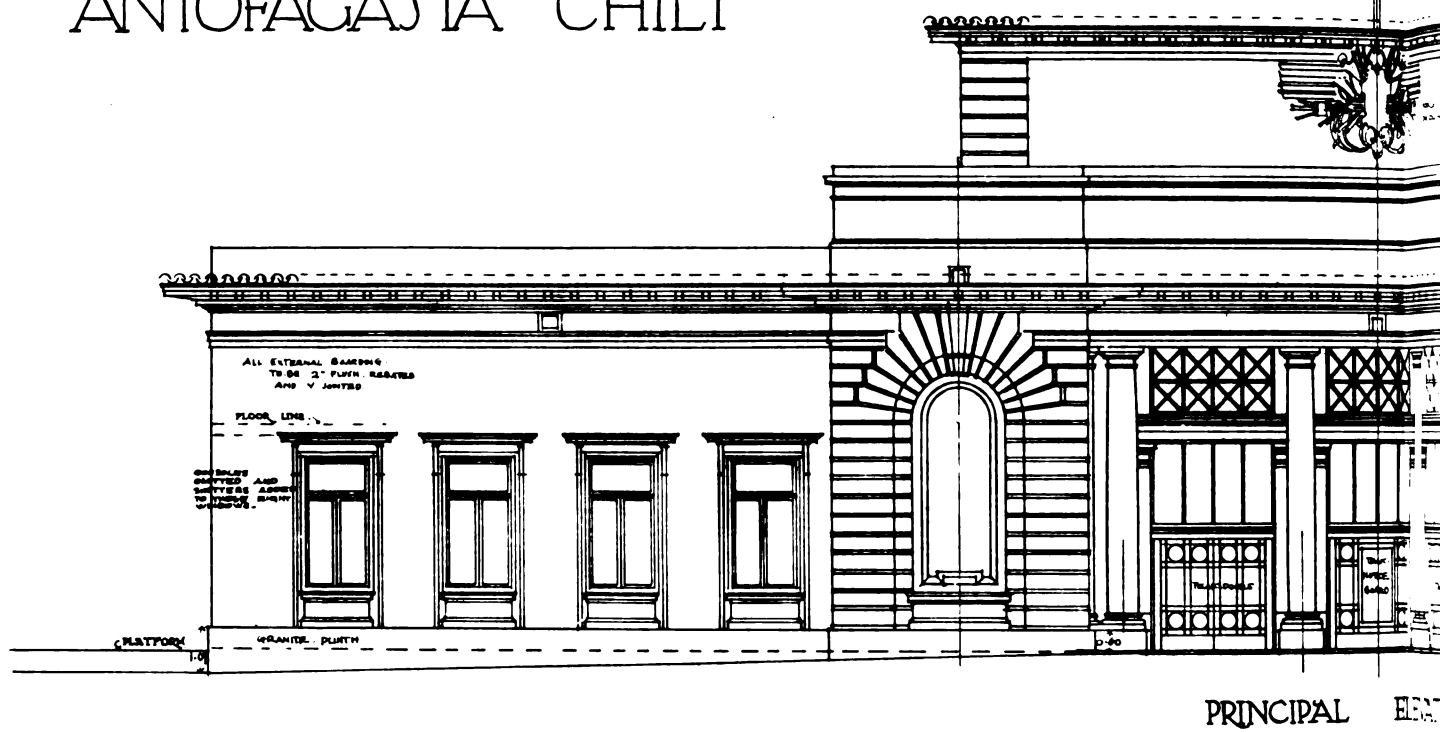








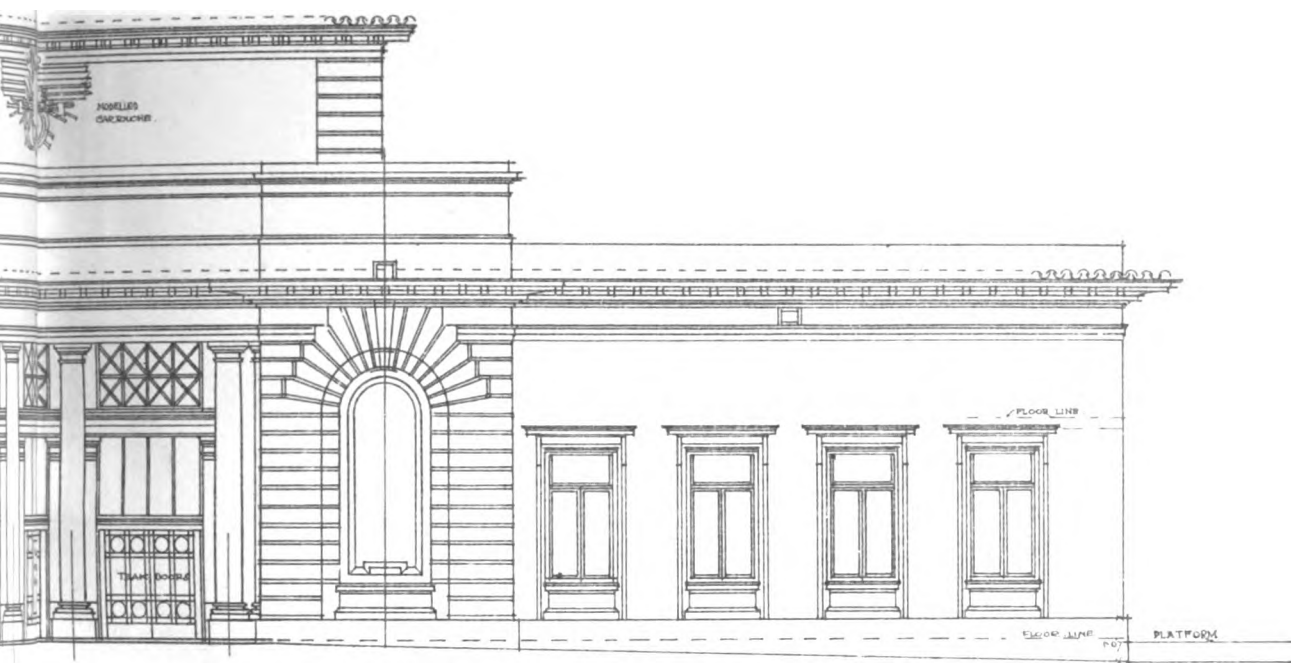
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The Station North Yard  
ANTOFAGASTA CHILI



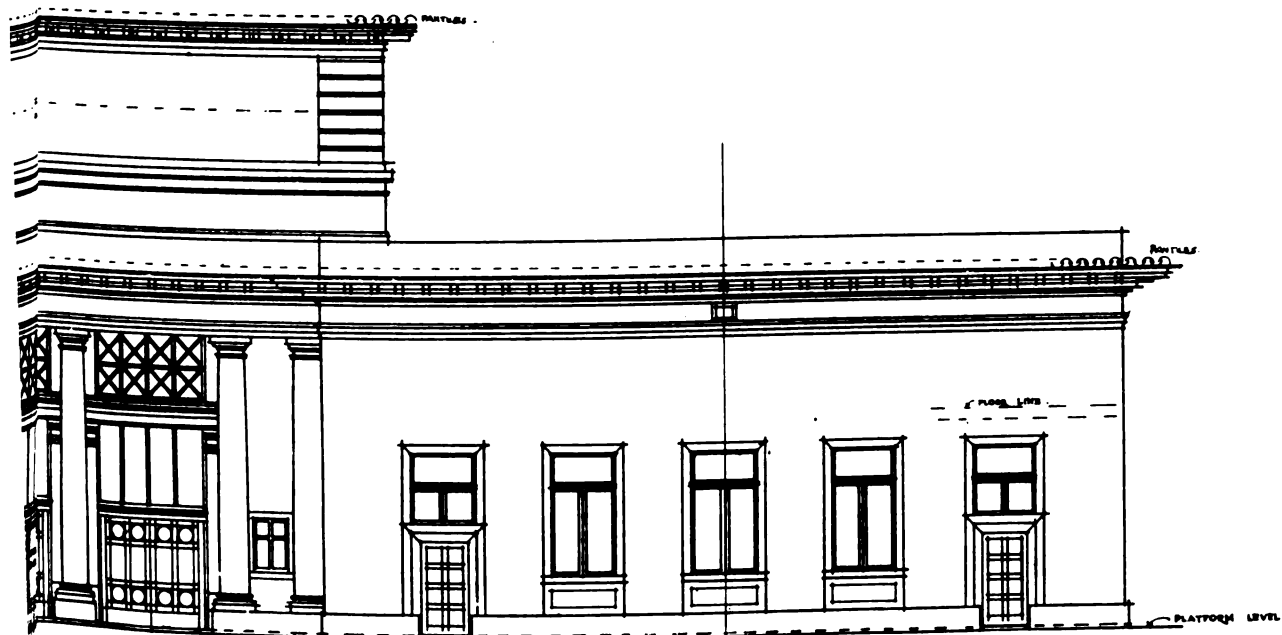
ELEVATION TO

SCALE 1:10

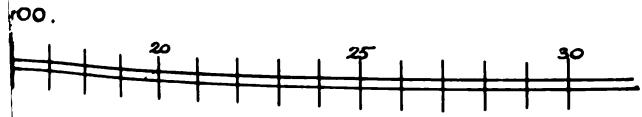




COAL ELEVATION.



PLATFORM.



ARNOLD MITCHELL  
F.R.I.B.A. ARCHT.  
17 HANOVER SQUARE  
LONDON, W.  
JANUARY 1914.

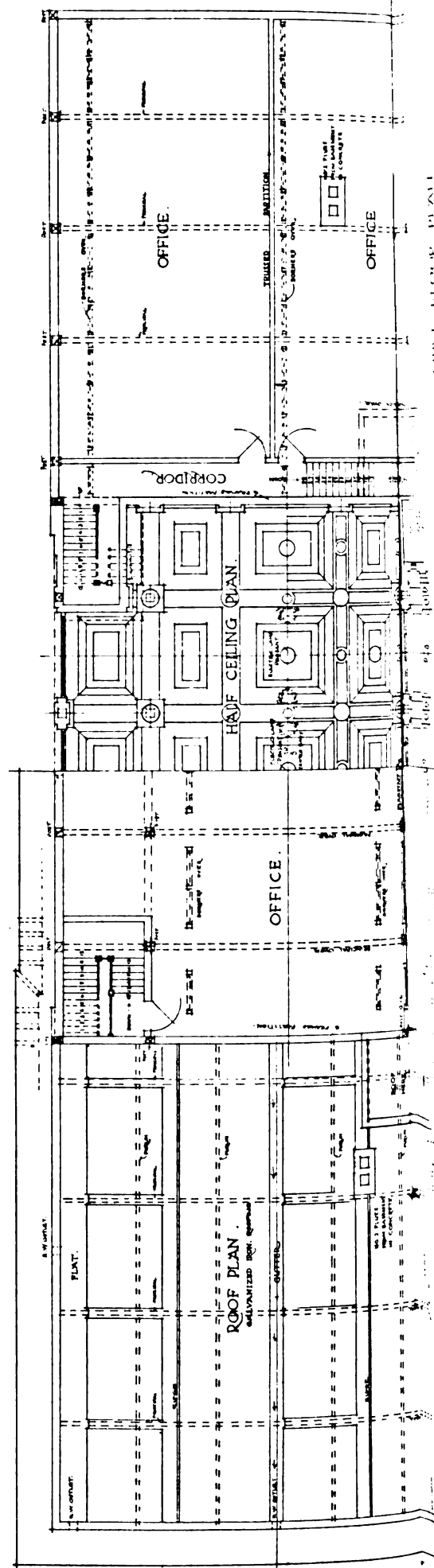


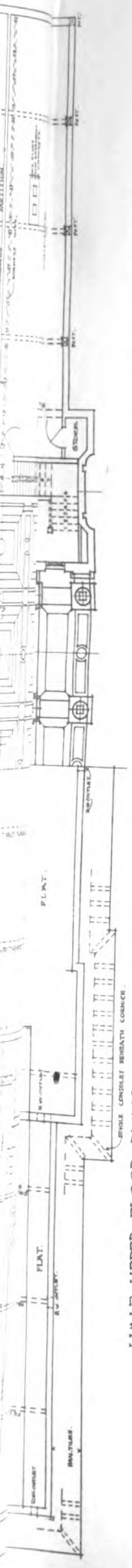




F.C.A.B.  
The Station North Yard  
ANTOFAGASTA CHILI

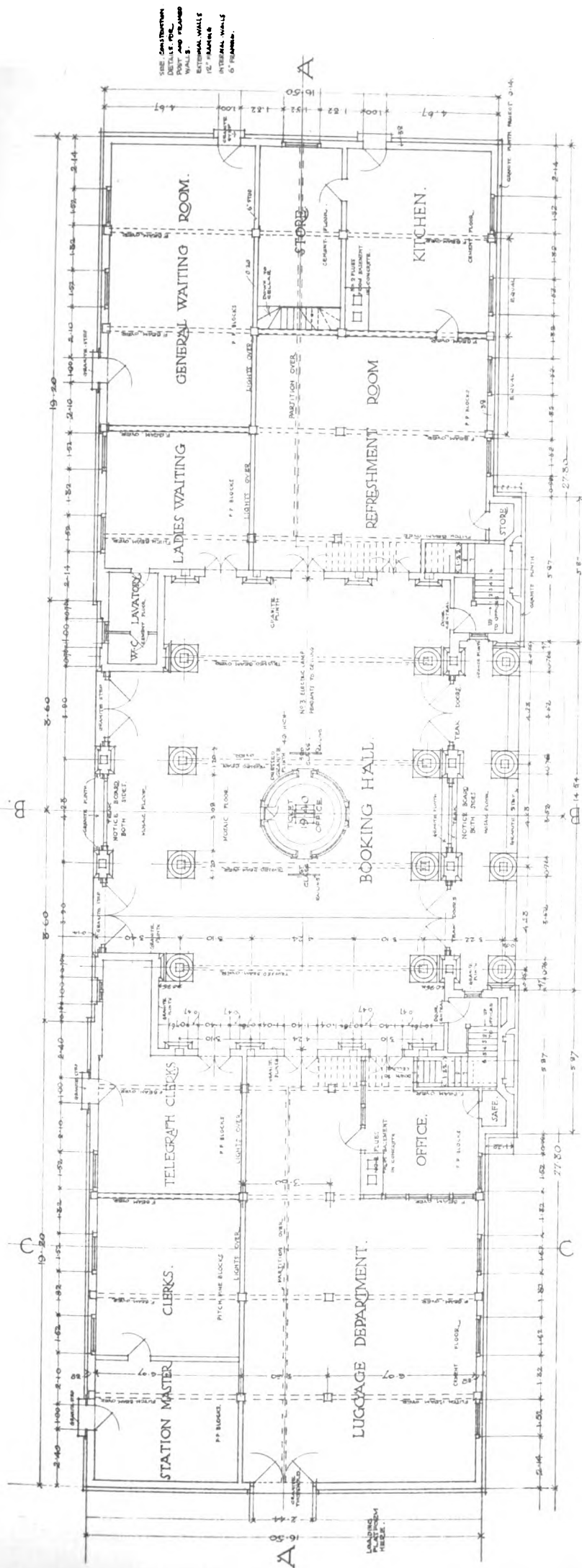
Architectural drawing of a roof plan at the center of a building. The plan shows a rectangular layout with a central corridor labeled "GALLERIES" and "GALLERIES" on either side. The outer sections are labeled "PLAT" and "PLAT". The drawing includes dimensions and a scale bar at the bottom right.





HALF UPPER FLOOR PLAN

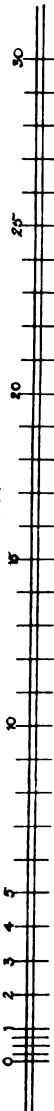
HALF FIRST FLOOR PLAN



ARNOLD MITCHELL  
P. E. & A. ARCHT.  
150 N. 4TH ST.  
PHILADELPHIA, PA.  
JANUARY, 1914

GROUND FLOOR PLAN

SCALE 1:100.





playground it would seem to be highly desirable that as new houses are built—either by private enterprise or by public action—land should be secured for village playgrounds and open spaces. The giving of land for this purpose might well form part of a carefully prepared scheme of rural planning.

(2) PROVISIONS WHICH SHOULD BE MADE OBLIGATORY IN PLANNING SCHEMES.

It is proposed to deal with this question as much as possible from the point of view of the engineer or surveyor to the local authority. Before doing this the author wishes to state that in his opinion the nation will have to rely for planning schemes more on the engineer than on the architect. The planning of the roads will always be the most important practical part of a scheme, and this is essentially the work of the engineer.

But it must not be forgotten that the engineer is apt to look too much in planning roads to easy gradients and shortness of routes between different places. The architect, on the other hand, looks at road-making too much from the point of view of planning the roads in such directions that the accessibility of the different parts of the area for building and development are best secured. He is apt to sacrifice easy gradients and directness of route for the sake of getting the most pleasing effects in vistas and view points, and the danger is that these may be too much considered.

It would seem in the future that if the engineer prepares the plan and if the Local Government Board has a number of experts on their staffs, these officials should be able to give the local engineer skilled advice upon his plan. Also the landlord's position in regard to the fixing of the lines for roads must not be overlooked. He will not agree to roads being put in such a position as to damage his land by making part inaccessible, and he may be trusted to look after his own interests.

The professional architect will come in when districts have to be developed and detailed plans prepared for the lay-out of residential districts. We owe a great debt of gratitude to those gentlemen who have been employed on this work at our present garden cities, and many lessons in the best methods of laying out sites can be learnt from these places.

In what follows it is assumed that the desirability of making planning schemes obligatory on all authorities is admitted, and the question how this can best be done is considered.

In the first place it would seem desirable to make the obligatory provisions as few as possible and ones that can be carried out in the simplest way. They should be designed to protect the area of the local authority even where no development is going on or is likely to happen in the near future, so that if for any reason, through the opening of a railway, and development of new enterprises (such as mining or the discovery of minerals, or the presence of a good water supply attracting special works) a district came to be suddenly developed the provisions of the plan would be there to prevent the overcrowding of people upon the land in the present unsatisfactory manner.

The provisions should also be designed to encourage and not retard the building of workmen's houses. Thus if the small builder comes along wishing to build a few houses, he should be encouraged and allowed to do so without making too many demands upon him—only ensuring that each house has more space, light, and air about it than has been insisted on hitherto by by-laws.

To effect this in every case certain points must be settled at once, and every authority would be required to frame provisions relating to these in their scheme.

The preparation of this obligatory scheme should not prevent more detailed and elaborate schemes being adopted later when towns begin to extend into different areas and when industries begin in country districts. It should then be the duty of the local authority to prepare schemes for the more detailed planning of those parts of their districts which are being developed. Such schemes would fix the residential areas, positions for

shops, factories, &c., and reserve land for playgrounds, recreation grounds, &c.

It is clear that at the outset it will be necessary to define what is meant by making certain provisions obligatory. If legislation is passed to make it incumbent on all local authorities to prepare schemes within a certain period of time, it will be necessary to give power to the Local Government Board to issue regulations defining those matters which local authorities should be obliged to deal with in their schemes (except in the case of roads). In considering the provisions which should thus be made obligatory, it is of primary importance that the provisions shall be those which are not subject to claims for compensation under the existing Town Planning Act, for it is clear that local authorities will object to be forced to make provisions that would let them in for claims for compensation.

The clause in the 1909 Act referring to this is 59 (1) and (2):—

1. "Where property is alleged to be injuriously affected by reason of any provisions contained in a town planning scheme no compensation shall be paid in respect thereof if or so far as the provisions are such as would have been enforceable if they had been contained in by-laws made by the local authority."

2. "Property shall not be deemed to be injuriously affected by the making of any provisions inserted in a town planning scheme, which, with a view to securing the amenity of the area included in the scheme or any part thereof, prescribe the space about buildings or limit the number of buildings to be erected, or prescribe the height or character of buildings, and which the Local Government Board, having regard to the nature and situation of the land affected by the provisions, consider reasonable for the purpose."

It is therefore suggested that in any fresh legislation that is passed, to make it obligatory on all local authorities to prepare planning schemes, that each local authority should be required to include provisions in its scheme relating to the following matters:—

1. The fixing of building lines on all roads. 2. The fixing of the directions of new roads. 3. Limitation of buildings to the acre. 4. Proportion of sites of dwelling houses to be built upon. 5. Space about factories, workshops, and buildings of exceptional height. 6. Provisions for varying the width of roads. 7. Open spaces. 8. Waiving of unnecessary regulations in building by-laws. 9. Provisions to secure amenities and to prevent nuisances.

It is proposed to consider these matters seriatim, and to suggest what would be reasonable provisions in planning schemes for urban areas. Afterwards the question of planning in rural areas will be briefly dealt with.

1. OBLIGATORY PLANNING IN URBAN AREAS.

1. *The Fixing of Building Lines on all Roads.*—A local authority under obligatory planning would need to carefully survey the roads in its district and fix building lines upon them all. These might have to be varied in different places, owing to the contour of the land and the claims of different owners, &c. There should not be much difficulty, except where building has taken place at intervals along a road, and it is suggested that local authorities should aim at having at least 60 feet between the buildings on opposite sides of a road. This in the case of secondary roads. In roads of greater width the distance between the buildings would, of course, be much more.

In the scheme there should be provisions for widening the road whenever required, the local authority being at the cost of putting back fences and the land being given free. Wherever a road is likely to require widening, there should be more than 60 feet between the buildings.

Whatever the widths of roads may be, the buildings should be set back in every case at least 10 feet from the boundary of the street. Though this provision for setting back buildings may appear drastic, it is really



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a blessing in disguise. If we consider how in many of our towns whole streets of dwelling houses are gradually becoming empty, and the houses depreciating in value, primarily because of their proximity to the street, it is easy to see that no real hardship is being placed upon the property owner by demanding a drastic set-back of houses along our roads. Only by this means, if the present development of motor traction continues, can a reasonable amount of comfort and quietness be assured to the dwellers in houses fronting our main roads.

As regards the widening of old roads, and the cost of same, this matter is treated later in this paper, where the question of the authority to be responsible for other than local roads is considered. It may be said here that there should be no difficulty in framing a clause which would be applicable to the widening of any present roads that will require this at some future date. Such a clause should provide that:

- (a) The local authority should be empowered to widen the road when they wished;
- (b) The owners of the land on each side of the road should give the land for the widening free of cost;
- (c) The local authority should bear the expense of setting back all fences, &c., and of the cost of remaking the road of a greater width, and also compensation for any buildings that would require to be pulled down or altered.

The above refers to roads that have been taken over by the local authority and are repairable by them. For the vast number of roads in the country about which there is dispute as to whether they are public or private, it would be the duty of the local authority in making a scheme to endeavour to come to some agreement with frontagers on such roads as to taking them over and widening them when required. It is impossible to make any suggestions about these, as there is so much variation in the conditions, but of course the local authority would not expect to bear so much of the cost as in the case of roads which are definitely public roads repairable by the local authority.

2. *The Fixing of the Directions of New Roads.*—This will be a most important matter to be considered. In almost every district there are one or two places where the engineer and the Council would like very much to see a new road placed. Often there is only one place where a road can be put to join up different parts of a district, and up to now there has been no means of getting such a road except at great expense. Each local authority should therefore be obliged to carefully survey its district and place on the map the most suitable directions for new roads.

(To be continued.)



[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### An Architect's Tour in Northern Italy.

SIR,—As an unprofessional but always interested reader of "The Architect," may I also express my admiration of and thanks for Mr. Ruthen's valuable articles on "Northern Italy"; and, further, might I suggest the publication in handy book form?

The articles are so far removed from the usual guide-book information that they would prove invaluable to intending visitors to a country so full of interest both artistically and historically, whether professional or otherwise.—Yours, &c.,

J. M. FITZCLARKE.

Burton Weir, Rotherham.

[We believe that the author contemplates publishing his articles in book form at the termination of the war.—Ed.]

## BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### BERKSHIRE.

*Reading.*—Park Hospital: isolation ward (£520).

##### CHESHIRE.

*Chester* (near).—Proposed Wesleyan Sunday school, Mouldsworth (£700).

*Dukinfield.*—Engineering Works: additions and alterations for Messrs. Roberts Brothers.

##### CORNWALL.

*Falmouth.*—Proposed small-pox hospital.

##### DORSET.

*Lyme Regis.*—Proposed district isolation hospital.

##### ESSEX.

*Burnham-on-Crouch.*—Cinema. Messrs. F. Whitmore & W. H. Pertwee, architects, Institute, London Road, Chelmsford.

##### HAMPSHIRE.

*Andover.*—Store, West Street, for Messrs. Young & Son.

*Southampton.*—Wilberforce Memorial Hall, Deanery grounds.

##### KENT.

*Broadstairs.*—"Alpha," Castle Avenue: additions for Mr. H. Roberts.

"York Cottage," York Street: alterations for Mr. J. Stockley.

##### LINCOLNSHIRE.

*Boston.*—No. 9 High Street: additions for Mr. H. Keightley.

Store, Horace Street, for Mr. F. Richardson.

*Lincoln.*—Cycle house, Toronto Street, for Mr. W. T. Priestley.

Power-house, Stamp End, for Messrs. Clayton & Shuttleworth, Ltd.

Workshops, Canwick Road, for Messrs. Robey & Co., Ltd.

##### NOTTINGHAMSHIRE.

*Warsop.*—Two hundred (or more) houses, for the New Hucknall Colliery Co., Ltd. Messrs. Vallance & Westwick, F.R.I.B.A., architects, White Hart Chambers, Mansfield.

##### RUTLAND.

*Oakham.*—Printing Works, High Street, for Mr. W. Scott.

##### SHROPSHIRE.

*Market Drayton.*—Proposed Home for Disabled Soldiers (£8,000).

##### SOMERSET.

*Bridgwater.*—Proposed district isolation hospital for twelve beds.

*Frome.*—Works: additions for Messrs. J. W. Singer & Sons.

*Glastonbury.*—Saw mills: alterations for Messrs. J. Snow & Co.

*Midsomer Norton.*—Workshop, Charlton Road, for Messrs. Pratten & Co.

##### WORCESTERSHIRE.

*Kidderminster.*—Factory, Green Street, for Messrs. T. & A. Naylor.

*Worcester.*—Proposed factory, Blackpole, for the King's Norton Metal Co., Ltd.

#### SCOTLAND.

*Coathbridge.*—Coats Works: extension for the Scottish Iron and Steel Co.

The Union Tube Works: extension for the Scottish Tube Co. (£1,300).

*Glasgow.*—Four hundred workmen's houses at Bellshill, Cambuslang, Carmyle, and Mossend.

No. 109 Hydepark Street, for Messrs. Phillips & Bruce.

Rope factory, No. 57 Wellshot Road, Shettleton: additions for Mr. W. E. N. Blake.

McLellan Street: additions and alterations for Messrs. Butters Brothers & Co.

No. 603 South Street, Whiteinch: power-house for Messrs. Brye & Olsen, Ltd.

Works, Dobbie's Loan: extension for Messrs. Frew Brothers & Co.

*Harwick.*—Albert Mills: additions for Messrs. Elliot, Mactaggart & Co., Ltd.



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# THE ARCHITECT

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## THE WORK OF THE NATIONAL PHYSICAL LABORATORY.

POPULAR interest in the work of the National Physical Laboratory, as reflected in the columns of the daily press, is only manifested in something more than usually striking. Thus, the appearance of cracks in the buildings of the Tower of London is deemed of sufficient interest to the general public to justify widespread reference to the critical observations thereof commenced in September last year by the staff of the National Physical Laboratory. Three special micrometers have been made for this purpose, one measuring the relative movement of the two sides of the crack perpendicular to the plane of the wall, and the other two the relative movements in the plane of the wall, in the horizontal and vertical directions.

The report of the Laboratory for 1915-16 states with regard to these observations:—"Owing to pressure of other work for the Ministry of Munitions, the observations have been confined to fortnightly readings of the micrometers. The results show perceptible displacements between successive observations at all the stations, but although in some cases there are indications of a progressive displacement, in the others the time rate of displacement is so irregular, being sometimes positive and sometimes negative, that the total displacement over the six months during which the cracks have been under observation is less than the maximum recorded. At only one station has the total movement in six months exceeded one-hundredth of an inch, so that over the period considered no serious disturbances have been detected."

The assurance that the movements investigated do not, at present, indicate serious disturbance is comforting to the public interested in the stability of a national monument like the Tower of London, but the observation of irregular displacement, sometimes positive and sometimes negative, in "settlements" of buildings is to ourselves, and no doubt also to many others of our professional readers, no new thing.

This phenomenon, in our experience, usually accompanies settlements in buildings where the foundations are not deep and rest upon a soil, such as clay, responsive to seasonal variations of moisture and drought. Under such conditions cracks, which in our own observations have been measurable by quarters rather than hundredths of an inch, open in dry weather and close in wet.

In our experience, the closure is, however, often incomplete, and although, as at the Tower, "the total displacement" . . . "is less than the maximum recorded," still it is permanent and, in a succession of seasons, cumulative. Therefore, in our opinion, these movements at the Tower, alternatively positive and negative, require further observation to determine whether the cumulative effect of flex and reflex may or may not be ultimately serious.

The report further records that "At one station near the river front there have been movements which suggest

the existence of an effect due to the rise and the fall of the tide." From our knowledge of riverside conditions in building on the banks of the Thames, this is what we should expect. The distance to which tidal action extends from the present water's edge is astonishing to those who first make its acquaintance in building operations near the river, and we should not be surprised to learn that the irregular displacements recorded are causally connected with tidal action. We would respectfully suggest that the periods of occurrence of those irregular displacements should be compared with the corresponding records of tidal flow as well as of rainfall.

The Report of the National Physical Laboratory for the year 1915-16 contains other matter than the investigations at the Tower of London which is of interest to architecture and the building trade.

Thus, it has generally been accepted as a maxim in building construction that a roofing material of low conductivity of heat would maintain a more equable temperature within a building than a material of high conductivity, and "in recent years considerable attention has been paid by manufacturers to the development of a cheap roofing material which would be free from some of the defects inherent in galvanised sheet-iron."

The report before us records a test made by the Laboratory "in order to obtain numerical data as to the amount of radiating surface it would be necessary to instal in a very large factory of which the roof was constructed of" one of the cheap roofing materials "composed of cement, to which fibrous material is added to render it less hard and brittle." The report says: "The results obtained were of a wholly unexpected character. The tests showed that the heat loss per square foot of the composite material was about 20 per cent. greater than that through galvanised iron. The key to the explanation of this apparent anomaly of a badly conducting material transmitting more heat than a good conductor was supplied by the previous work on the heat loss from surfaces, and it was concluded that the explanation lay in the difference of surface emissivity of the two materials. The correctness of this view was borne out by further experiments."

If the National Physical Laboratory had, during a year's work, made no further discovery of importance to architecture and the building trade than this demolition of a firmly held illusion, its existence would have been justified. We now know that conductivity or non-conductivity of heat is not the only factor which determines whether a particular roofing material will tend to keep our buildings warm in winter and cool in summer.

In the explanation of the discovery to which we have referred, mention was made of the previous work of the Laboratory on the heat loss from surfaces. This has been continued, as occasion permitted, during the year with special reference to the influence of orientation of the emitting surface on the heat loss by convection, and the results showed the interesting and important fact that the convection loss was markedly dependent on the orientation of the surface. Thus we know that the area of its surface is not the only consideration affecting the value of a heating apparatus, but that its position is important.

Amongst other investigations of the Laboratory of interest to building have been measurements of the insulating properties for heat of bricks of low conductivity, and investigations of the thermal conductivity of slabs of silicate cotton made up in the form of matting, of granulated cork and slab cork, and of other materials used for cold-storage work.

Thermal reaction in the manufacture of Portland cement, the efficiency of British-made pyrometer-tubes, and the resistance of concrete pipes to external crushing forces are other matters, more or less connected with building, that have engaged the attention of the staff of the Laboratory during the past year, so that, even at a



time when the special requirements of manufactures connected with war have occupied a very large proportion of the time of Dr. Glazebrook's corps of investigators, the National Physical Laboratory has done useful work for the building trade.

### NOTES AND COMMENTS.

THE appointment of Mr. Charles John Holmes, Director of the National Portrait Gallery, to be Director of the National Gallery should satisfy both those who demand a painter for the position and those who plead for the possessor of expert knowledge, experience, tact, and energy. Mr. Holmes is an artist of considerable originality; he has been Slade Professor of Fine Arts at Oxford, for several years he edited or helped to edit the "Burlington Magazine," and since 1909 he has been Keeper of the National Portrait Gallery. In his various official posts Mr. Holmes has been most enterprising, and above all tactful, which is, however, a quality that must be supported by firmness of faith and purpose. A Director of the National Gallery lacking this firmness would be ineffectual—indeed, little better than an expensive figure-head. The National Gallery is controlled by a body of Trustees, who are amateurs in the sense that they have little or no practical knowledge of art, and therefore should be guided by the opinions of the Director. But it must be assumed that the Director's guidance has not always been accepted in the past.

Mr. Holmes, however, has the reputation of having contracted the habit of having his own way, without ever departing from, or perhaps in consequence of, the exercise of his suave and tactful manner. He has written books on art that are considered standard works and are held in high esteem by students and connoisseurs. His monograph on Constable certainly deserves to be so described. His "Science of Picture Making" is one of the most illuminating and stimulating essays on æsthetics published in recent years.

It appears that the opportunity which the Arts and Crafts Society will have in the holding of its exhibition this autumn in the galleries of the Royal Academy is to be fully exploited. We are told that the exhibition will be arranged by a committee of artists. A series of interiors will be constructed which can be set up and removed without damage. They will be decorated and furnished by different artists, and arranged within them will be individual works selected for their fitness to the scheme of decoration adopted.

There will be a large municipal hall, with the side walls divided into bays, each bay being decorated by an artist or a group of artists working in harmony with an agreed scheme. In one gallery an ideal council chamber will be set up, and the central octagon will be arranged as a series of apsidal chapels, decorated by individual artists or groups of artists.

Another gallery will be devoted to university or educational purposes, and will show the decorative possibilities of an ordinary lecture-hall or class-room. In the entrance will be given a panoramic suggestion for the reconstruction of Trafalgar Square. Textiles, metal-work, and embroidery will have special galleries devoted to them. The whole exhibition will thus be not merely a selection of individual productions, but an organised demonstration of the creative possibilities of British craftsmanship.

Though, like all other centres of advanced education, crippled in its quota of students by the demands of the war, the School of Architecture of the University of Liverpool is still able to make a good show in work of its principal students on the lines which it has especially made its own in recent years, the development of Architecture with a capital A, in the fashion of the *Ecole des Beaux-Arts*. It aspires yet again, we understand, to

place to its credit the English Prix de Rome in Architecture.

A lengthy correspondence has taken place between Sir William Haldane, W.S., Edinburgh, one of the Development Commissioners, and Sir Andrew Agnew, President of the Royal Scottish Arboricultural Society, chiefly ranging around the proposal made by the Commissioners that the landowner should provide the land without charging any rent, that the State should do the planting, and that 50 or 70 years hence the owner should receive a certain share of the profits. It is scarcely likely that this proposal would be generally accepted, and we understand that substantial agreement has now been reached as to the terms which might be submitted to the Treasury and the landowners as an optional alternative to the proceeds-sharing scheme approved.

The crass stupidity with which we have allowed Germany to monopolise the sources of raw material essential to industry is illustrated by the experience of the gas-mantle industry.

At the annual meeting of the Society of Chemical Industry in Edinburgh, a paper was contributed by Mr. S. J. Johnstone, B.Sc., on the position of the British rare-earth industry, one of the most important branches of which is the manufacture of incandescent gas-mantles.

Notwithstanding the fact that the most valuable deposits of monazite sand so far discovered are in territory under British protection—that is, in Travancore—these deposits and the gas-mantle industry dependent on them were, before the war, virtually under German control. The sand was obtained in Travancore at a cost of about £4 per ton, and shipped to Germany, for the use of the manufacturers of thorium nitrate and incandescent gas-mantles in that country.

Only a limited quantity of the sand was allowed to be sold to gas-mantle manufacturers and others in the United Kingdom, and from them a price of about £36 per ton was demanded and obtained.

For most of the mantles made in England, however, thorium nitrate made in Germany was used. The only other important deposits of monazite sand are in Brazil, and these also are controlled by the German thorium ring.

Mr. Johnstone, in his paper, said that the manner in which the Germans obtained practical control of the Travancore monazite deposits was most interesting and significant. A lease for working these deposits was granted some years ago by the Travancore Durbar, with the approval of the Government of India, to the London Cosmopolitan Tin Mining Company, a condition being that the concession could be transferred only to a British company. The Travancore Minerals Company was formed to work the deposits and contracted to sell the whole of its output to a German firm.

Soon after the outbreak of war it was found that the whole of the Preference shares and 11,000 of the Ordinary shares of the Travancore Minerals Company were held in trust for the Auer Company, of Berlin.

The India Office had now decided that in future all the directors of the company working the concession must be British-born. German contracts had been cancelled, and the company must be ready at all times to sell monazite sand direct and at a fair price to British firms.

A second company, Thorium, Ltd., had now obtained a twenty years' lease to work 150 acres in Travancore for monazite sand, and was now exporting the sand and manufacturing thorium nitrate from it at works in this country.

During the past year a good deal of Travancore monazite had been shipped to the United States, and many manufacturers of gas-mantles in this country had been getting their supplies of thorium nitrate there.

At least four of the British makers, however, were making thorium nitrate from Travancore sand in quantities sufficient for their own requirements, and there is no reason why British makers should not supply in the future a large part of the world's requirements of thorium nitrate from the Travancore monazite.

Nevertheless, the new British industries might need some form of Government assistance, either by tariff or otherwise, since the German manufacturers would still be able to obtain Brazilian monazite sufficiently rich in thorium to enable them to compete with the British industry.

In his presidential address to the Somersetshire Archaeological and Natural History Society the Dean of Wells said it was not for him to make a general discourse on the value of such a society as that, or on the history of the society. He thought he had better take one small field in which he could work up something new, to some extent, dealing with a really great man. His subject was "Memories of St. Dunstan in Somerset." It seemed to him that they did not make enough of Dunstan as one of their county's glories, yet after Alfred no name deserved a higher place in their record than the nephew of Athelm, the first Bishop of Wells, who became the first reforming abbot of Glastonbury, the restorer of monasticism in England, the wise counsellor of their Saxon kings Edmund and Edred, who kept their Court so much in Somerset, and then, as Archbishop of Canterbury, the leading statesman of the reign of Edgar the Peaceable, musician, painter, goldsmith. For centuries his fame was obscured by false accusation of heartless severity, ignorant monkery, silly superstition, until the late Bishop Stubbs finally rescued him from his detractors by publishing the earliest records of his life and showing him the great Englishman that he truly was. That was in 1874, but earlier still, in August, 1862, at the meeting of their society, J. R. Green had already begun to do him justice in a paper on "St. Dunstan of Glastonbury," speaking of him as "the first of the great line of ecclesiastical statesmen, counted among whom were Lanfranc and Wolsey, and ended in Laud." The chronology of his life had been thrown strangely out of gear, and much still remained to be done before his work for religion in England could be duly appreciated. He hoped that before long he might be able to straighten out some of the chronological complications and to settle some important dates. His object on that occasion was to awaken a new local interest in their Somerset hero by some scraps of neglected information showing how and where his fame still lingered in their midst before it was blotted out by the great deluge that swept over England in the sixteenth century. What, he asked, could be said of Dunstan's birthplace? Through one or both of his parents he was connected with the Royal house. There was one village, and only one as far as he was aware, in which the claim was made by local tradition, and that was Baltonsborough,  $3\frac{1}{2}$  miles south-east of Glastonbury, as the crow flew. An old house was pointed out as the place where Dunstan was born, but according to some the house stood where the church now stands. The church was dedicated to St. Dunstan, the only such dedication, he believed, in Somerset. Baltonsborough was the one spot round which all the local memories of Dunstan clustered. In other parts of Somerset he had been able to note few traces of the saint. At Athelney the monks had a "book of the blessed Dunstan." Of course, both Wells and Glastonbury did honour to Dunstan, and the Dean proceeded to dwell on some customs and associations of St. Dunstan with those places. In conclusion, the Dean remarked that the trivial reminiscences which he had been able to gather would not be collected in vain if they helped to recall the greatness of their Somerset saint of a thousand years ago.

The Rev. J. F. Chanter, of the Church Plate Committee, has been visiting parishes in the rural deaneries

of Holsworthy and Torrington, and he spoke at the Devonshire Association meeting of mysterious disappearances which must grieve others beside the antiquary. What has happened in the Holsworthy and Torrington deaneries is no doubt true of other places. It is a pity something cannot be done to prevent pre-Reformation relics taking wings and flying to the unknown, as appears to have occurred at Milton-Damerel during a vacancy in the living. The need of an inventory of the church plate of the county, said Mr. Chanter, became more and more apparent. If that would act as a check upon Church property being spirited away the wonder is it has not been done long ago. "The substitution of tasteless and valueless modern plate for beautiful and valuable ancient pieces is still very noticeable," Mr. Chanter observes, and that may explain in some degree losses that are very distressing to lovers of the antique. It suggests, too, that the unwisdom which prefers "new lamps for old" is not confined to the "Arabian Nights."

## ILLUSTRATIONS.

### THE ANTOFAGASTA STATION, CHILI.

WE give herewith details of the working drawings we illustrated last week of Mr. Arnold Mitchell's design for the railway station at Antofagasta, Chili.

### DESIGNS FOR SMALL COUNTRY HOUSES.

THESE sketch designs were prepared by Messrs. Ernest Runtz, Son & Farrow for an estate in Surrey, but their realisation has been hindered by the war.

## AN ANTIQUARY'S SURVEY OF SOUTHAMPTON AND PART OF THE ISLE OF WIGHT.

By P. H. DITCHFIELD, M.A., F.S.A.

EVEN in war-time it is part of an editor's duties to set out on a voyage of archaeological discovery in company with the enthusiastic members of his Society, who have decreed that, in spite of war's stern alarms, they mean to hold an annual Congress. This was the decision of the Council of the British Archaeological Association, which has just been celebrating its twenty-third Congress at Southampton. It was only a brief informal gathering extending over three days. Many members of the Association are engaged in war-work, but thirty-five managed to be present, and in some of the excursions and meetings they were accompanied by members of the Hampshire Field Club, the Literary and Philosophic Society, and the Record Society, which has done good work in investigating the documents relating to Southampton. At any rate, those who could attend, being too young or too old to fight, and the members of the gentler sex, felt that in holding the Congress they were distracting their thoughts for a brief space from the anxieties of the moment, and were doing no harm to anyone. The Congress owes much of its success to the President, Mr. Charles E. Keyser, F.S.A., to Mr. Dale, Secretary of the Hants Society, to Mr. Colnutt and Dr. Whitehead for their admirable descriptions of the treasures of the island, and especially to Mr. A. W. Oke, F.S.A., who kindly acted as Congress Secretary, and upon whom (after the manner of secretaries) the burden chiefly fell.

The readers of "The Architect" will doubtless prefer to have an impression of our visitations rather than a detailed account of each day's proceedings or references to civic entertainments or philosophical conversaziones. I found that Southampton is an ideal place for antiquarian study and architectural research. It is usually considered a place of passage rather than one to rest in, but it is well worthy of a detailed survey. Its long history dating back to Roman times, its situation as one of the principal ports on the southern coast its important trade, have left their marks, which Time





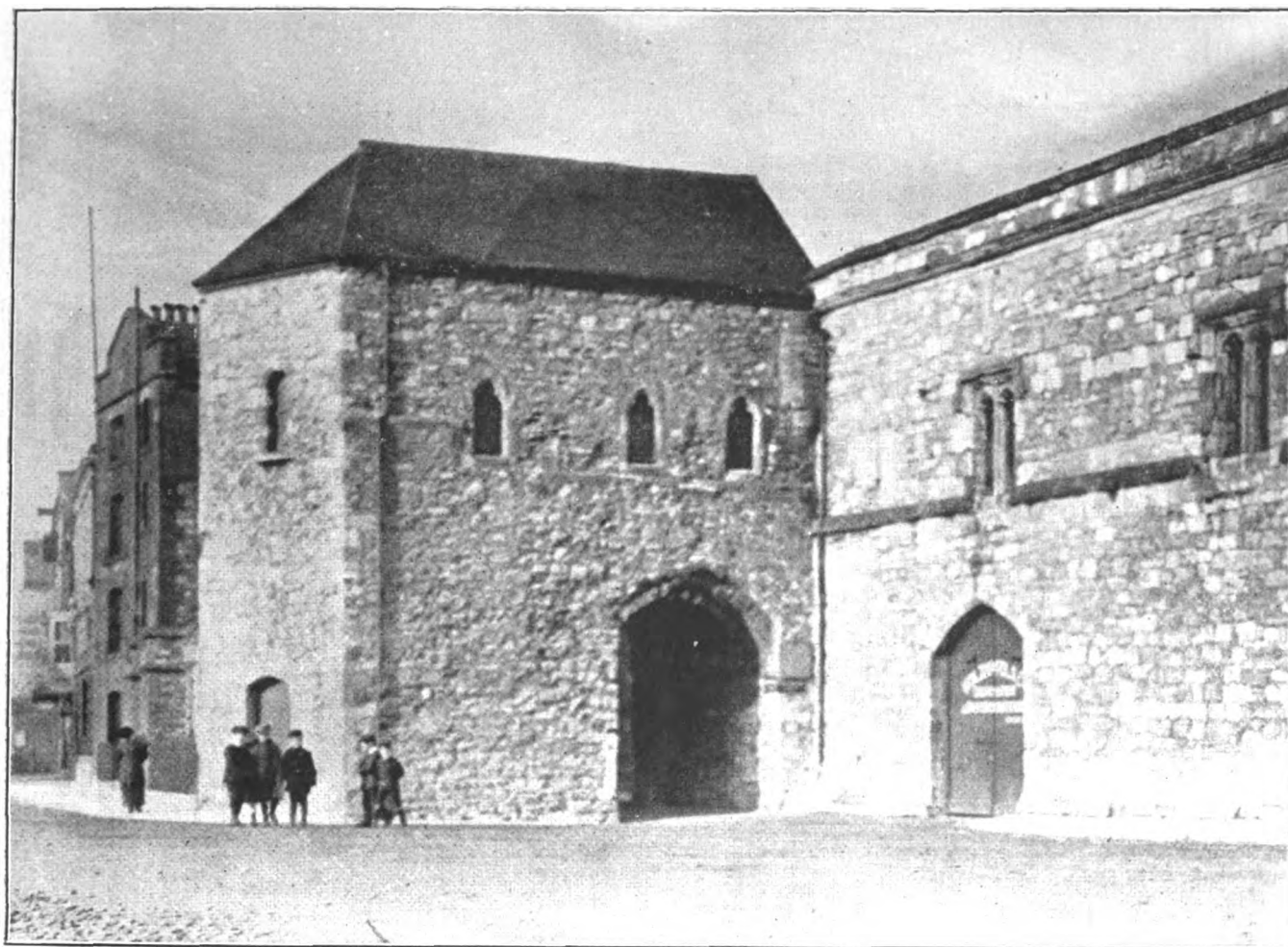
THE BAR GATE, SOUTHAMPTON.

[Photograph by P. S. ALBERT.]

and modern building operations have failed to obliterate. There is an extraordinary amount of Norman architecture that remains. I was grieved to notice the recent destruction by the Corporation of a Norman dwelling that stood opposite the so-called "King John's Palace," in order to erect some flats. Norman houses are not so common in England that we can afford to lose them. The "Palace," however, remains, though its connection with the worthless monarch is rather remote and uncertain, and calls to mind the saying of Voltaire with regard to the Holy Roman Empire—viz., that each individual portion of the name connotes a distinct and separate historical error. It is certainly of Norman date, and is in two stages. Mr. Hudson Turner says of it: "It is nearly perfect, except the roof, and is probably one of the oldest houses remaining in England, being rather earlier than either the Jew's house in Lincoln, or those at Christchurch in Hampshire, Boothby Pagnell in Lincolnshire, or Minster in the Isle of Thanet, all well-known instances of the domestic architecture of England in the twelfth century, while the present example may perhaps be safely referred to the earlier half of that century."

The house stands in Blue Anchor Lane, and its western wall is behind the wall of the town. This part of the town wall was erected after the attack by the French in 1337, who wrought much destruction. Stow records this visit of our ancient foe, now our firm and beloved Ally, in a passage which I should like to quote, but space forbids. One of the notable features of the walling of the guarding fortifications of Southampton is its arcading, which adds much picturesqueness to it. This, however, was not added for the sake of beauty, but merely for utility, in order to save building material and to provide support for the ramparts on the summit of the wall. Of the eight gates which formerly guarded the entrances to the town, four happily remain, Bar Gate, God's House, or South Castle Gate, West Gate, and the postern called Blue Anchor Gate. It has actually been proposed to pull down Bar Gate, the most interesting gate of the town, for the sake of widening the roadway. It is earnestly hoped that such a piece of vandalism will always be steadfastly resisted. If it should be absolutely necessary to provide increased space for traffic this could be done as at Warwick, by diverting the road on either side. The gate was originally Norman. It was much





GOD'S HOUSE GATE, SOUTHAMPTON.

[Photograph by P. S. ALBERT.]

altered in the fourteenth century. An admirable description of it is given in the "Victoria History of Hampshire," and need not be here repeated. The room above the gateway is the Guildhall, where the gild-merchants used to meet, and the rest of this might be occupied with a description of its ordinances, of the weapons stored there, of the court-leet books, the lions which guard the entrance, and which are connected with the romance of Bevis of Hampton, the heraldic achievements, paintings, niches, statues, and watch-bell, which bears the date 1605, and the inscription "In God is my help." It is satisfactory to note that the Corporation has opened to view and repaired the west side, having removed a public-house which stood against it.

The West Gate is less ornate, but it served its purpose of strong defence by its massive door and two portcullises. This gate led to West Quay, the only landing-place, and through it must have passed companies of archers and billmen on their way to Crécy and Agincourt, crusaders and pilgrims on their way to the shrines of St. Swithun of Winchester or St. Thomas of Canterbury. A stairway on the left leads to a building called the "Guard Room," a fifteenth century timber structure, used by the men-at-arms who guarded the walls. It has a finely timbered roof and "wattle and daub" walls on a stone basement. It is built against the town wall, but leaving a space for the rampart walk.

A conspicuous instance of modern vandalism and of the evils of "restoration" can be seen in the hospital of God's House, or St. Julian's Hospital. I will not tell its story, save to note that it was founded for poor brethren and sisters in the time of Richard I. by Gervase de Riche, a burgess and reeve of the town. It was amply endowed, and there was a master or warden, who seems to have been usually non-resident, and two or three priests who said the services in the chapel and

attended to the spiritual wants of the poor folk. Alms were given to pilgrims coming from abroad, and money was daily distributed at the gate of the hospital. Part of the endowment and the custody of God's House were granted by royal decree to Queen's Hall (afterwards Queen's College) at Oxford. The old buildings remained until 1861. They were in a substantial condition and need not have been destroyed. But the decree went forth and they were pulled down, and new buildings were erected for the accommodation of four sisters and four brothers. The old gateway was renewed, and the chapel of St. Julian "restored" out of all semblance of antiquity. It was granted to certain refugee Huguenots who came over in the time of Queen Elizabeth, and has since remained the French Protestant church of the town.

The old Wool House is a fourteenth-century building, and is reminiscent of the ancient trade of the town, when English wool was greatly esteemed by the cloth-makers on the Continent. Great stores were collected here and then shipped to Flanders, whence it returned in the form of cloth. Slowly it dawned upon Englishmen that it would be more advantageous to make the cloth in England, and English fleeces were kept in this country. Formerly the English staple of wool was at Winchester, until it was removed to Calais. In Porter's Lane is a Norman house which by some strange freak has been called "Canute's Palace." Needless to say, it had no connection with that monarch, though the tradition that it was at Southampton he bade the tide to cease rising is believed to be true.

Southampton seems partial to palaces, and the fine mansion commonly called Tudor House is sometimes known as "Henry VIII.'s Palace." It is certainly worthy of its designation, and perhaps it is true that he brought Anne Boleyn there, and also that Philip II. of





THE WEST GATE, SOUTHAMPTON.

[Photograph by P. S. ALBERT.]

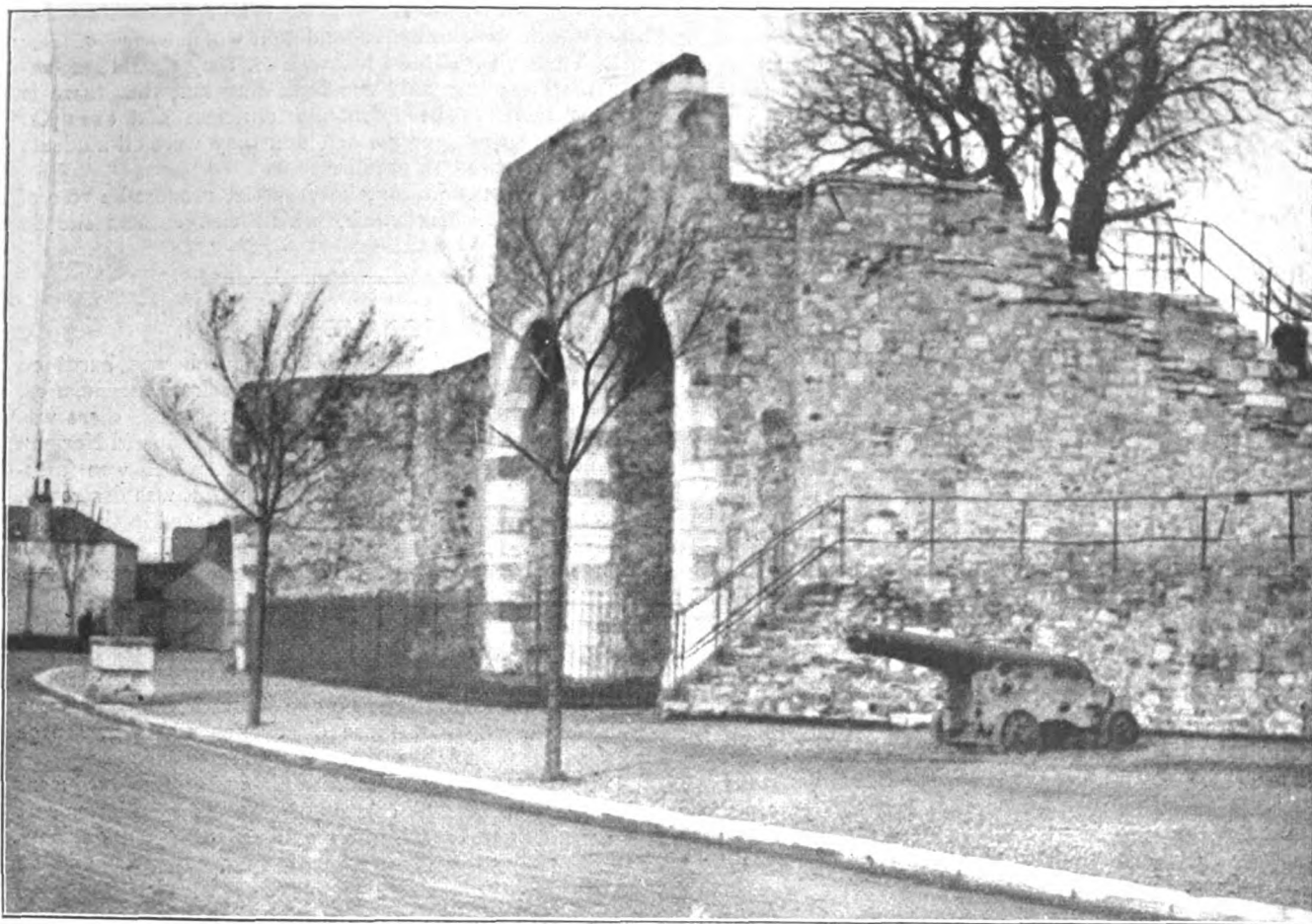
Spain stayed there before his marriage with Mary Tudor. It was built by Henry Hultoft, who had a somewhat melancholy career. He was a rich merchant and a friend of Thomas Cromwell, who obtained favours for him from Henry VIII. Professor Hearnshaw has traced his decline and fall, but the story would take too long to tell. The building has four projecting gables, and is of two storeys with an attic. There is a long row of mullioned windows, projecting barge-boards, and upright timbers placed somewhat close together, a sign of early date in the construction of half-timbered houses.

The value of the journey of the Association to the Isle of Wight was greatly enhanced by the presence of Mr. Percy C. Stone, whose excellent work on the buildings of the island is known to all students of architecture. A visit was paid to the old decayed borough of Newtown, with its tumble-down town hall and grass-grown streets; but this presents no feature of architectural interest, though its history as the rottenest of "rotten boroughs" is curious. Shalfleet possesses, perhaps, the most interesting church in the island, and here the good work of a skilled architect has at last borne good fruit. This church has a very ancient tower dating back to the time before the Domesday Survey. Its bare walls are 5 feet in thickness, but, as Mr. Stone pointed out, thickness is no sign of strength. Early builders often scamped their work, and the interior core is often absolute rubbish. This was notably the case at Peterborough Cathedral, and its condition some years ago caused the Dean and Chapter much anxiety. At Shalfleet the thirteenth-century builders had greatly weakened the tower by cutting away its eastern face and forming a large arch. In early times there had been a settlement, and the western-most pier of the nave is considerably out of plumb.

A quarter of a century ago Mr. Stone had pointed out the insecure condition of the tower. Increased

danger had been caused by the insertion of a door on the north for a ringers' entrance. Some iron tie-rods had been put in, which were satisfactory as far as they went, but considerable cracks were evident. The tower was formerly capped by a cupola, erected in the seventeenth century, and this gave place to a spire, which has recently been removed. For a long time the tower had remained in its unsafe condition, but at last the authorities had moved, and Mr. Stone praised very highly the work that had been done, upon which the masons were still employed, in strengthening the tower, which was now quite safe. Graves, he said, drained the ground, and he would like to have a law passed that no graves should be dug within 10 feet of a church wall. In describing the rest of the church Mr. Stone said that the nave and north doorway were built about the middle of the twelfth century, and above the door there is a remarkable tympanum in which is a clothed figure between two lions, representing Daniel in the lions' den, the prophet standing up with his hands on the necks of the beasts, and the tail of each lion is twisted round so as to be raised above the body and terminating in a large bunch of foliage. This is the only representation of the prophet on English tympana, unless that at Downe St. Mary is intended to illustrate the same subject, though there are several instances on the Scotch and Irish crosses. The church was remodelled about 1275, and the south aisle added as a vicarial church. The aisle was lighted by windows with unusual tracery of oval shape, somewhat barbaric in design, but good of its kind. The chancel was a little later. The church is much the same now as it was at the end of the thirteenth century, except the roof and the rather hideous north wall, from which in recent times the plaster had been cut off. About twenty-five years ago architects had the idea that plaster was a modern thing, and ought to be





THE TOWN WALL, SOUTHAMPTON.

[Photograph by P. S. ALBERT.]

done away with. This Mr. Stone thought was a great mistake. The east window of the aisle is modern. There is a thirteenth-century piscina, and outside are two thirteenth-century grave slabs which have been much injured by exposure to the weather, and ought to be brought into the church. The old Jacobean Communion-table had been converted into a reredos designed by Mr. Stone. The floor of the church sloped down to the east end without a step—probably a unique arrangement. The bells of the thirteenth century had been sold, and are now at Thorby Church; but there were two of early nineteenth-century work, one dated 1807, and the other of the year of the Battle of Waterloo—1815. The church plate belonged to the sixteenth century. The rector exhibited a remarkable watch given by Charles II. to Captain Nicholas Tettersell in gratitude for helping him to escape from England and conveying him to France after his remarkable escape from the Battle of Worcester. The present writer, in the absence of the President, thanked Mr. Percy Stone for his illuminating address, and congratulated the rector and churchwardens on their work in making their church secure.

I should like to describe our visit to Yarmouth, and the very interesting hall and chapel of the twelfth and thirteenth centuries at Swainsbone Manor, and the churches of Southampton and Netley Abbey, but I have already exceeded the space allotted to me, and I imagine that the readers of "The Architect" would prefer to study a lengthy description of a few of the best examples that were visited rather than a brief notice of many buildings. Congress excursions only whet the appetite for more, and some of us would enjoy to traverse all the ground again and have time to examine the details more particularly. We shall, however, retain many pleasant recollections of our visit to Southampton and the Island, and grateful thoughts of all those who helped to make the Congress so successful.

### THE ARCHITECTURAL ASSOCIATION.

THE Architectural Association School of Architecture completed its session on Friday last, the 21st inst., when the awards for the year were announced and the prizes distributed. Owing to the general condition of affairs at the present time, the proceedings were quite informal, and were held in the school studio, in which were exhibited the drawings executed by the students during the past year.

The President, Mr. A. G. R. Mackenzie, in distributing the prizes, said that his first impression on seeing the exhibition of work was that it was an excellent one, and after going thoroughly through the drawings that impression was more than confirmed. He thought he could justly say, without taking into consideration the difficult times in which we live, that the drawings exhibited were well up to the high standard which we all expect to find in Architectural Association students' work.

He knew the students had worked under very adverse conditions, disturbed by the upheaval caused by the change of premises, and thought he ought to thank them for the loyal way in which they had supported the Council in this difficult operation, and he did this heartily, because without their assistance so cheerfully given the problems the Architectural Association had to contend with would have been far more difficult.

It was not surprising to find that there were no students in the first-year course. All those who had intended joining the school had gone into the Army instead, where we would all like to be if we were able. Three students who were in the first year at the beginning of the session have been moved up into the second year, and this promotion was fully justified in their work.

The School of Design, although only in the first year of its life, could be voted a very great success. As all the students knew, the subjects are set there first

of all as a twelve hours' esquisse, which must not be departed from in principle. The idea of this is to instil quick working and a rapid grasp of essentials of the subject. The schemes were afterwards developed with the assistance of the reference library, the constant use of which is very gratifying and fully justifies the kindness of donors such as the late Mr. Florence, who left the whole of his valuable library to the Association. This School of Design was quite in its early stages, but its prospects were extremely favourable, and he believed that the work which it will accomplish will be better than anything that has yet been done by students in England.

He was sure the students would all be the first to admit the great debt they owed to their brilliant headmaster, Mr. Atkinson, for all he had done in the school, and for his untiring energy and enthusiasm; and Mr. Atkinson, in turn, would be the first to acknowledge the value of the able assistance given him by Mr. Bucknell and Mr. Lowry.

He hoped it would not be long before their labours would have a much wider scope in new premises. He was sorry he was unable at the moment to tell them that a future home for the Association had been secured, but he did not think it would be many months before he would be able to make a more definite announcement with regard to this.

They must have a home worthy of the Association and its schools, and their idea was that it should be a centre of young architectural life and kindred arts for not only London, but the whole Empire. They wanted it to be a great force in anything appertaining to their art, and were sure that this would be accomplished.

Many activities would be possible in a new building. The school could be developed on even more influential lines than in the past. They hoped to institute a fourth-year course, which would have for its main idea the study of architecture in conjunction with town planning. They would like to have a permanent life class, with models practically always sitting, and to institute many other schemes; and, apart from this, they must have a building for the purely social side of the profession, which would have that "club" atmosphere which would attract their professional brethren and those engaged in the allied arts to look upon it as a rendezvous of all those who were interested in architecture and its allied arts.

To come to the business which brought them there that afternoon, the announcement of the awards for the session and distribution of prizes, he said it had been a work of great pleasure examining the drawings, and in weighing and balancing the value of the designs produced and noting the advance made. Of course everyone could not have prizes, but it did not follow that everyone had not done good work.

Mr. Mackenzie then awarded the following prizes:—

*First-year Prize.*—Books, Jean Godwin.

*Second Year.*—First prize, £10 10s. books, W. Bollandsee; second prize, £5 5s. books, V. J. Wanning; third prize, books, K. S. Meager; prize for general improvement, F. A. McEvoy.

*Third Year.*—Studentship, value 25 guineas, W. E. de Souza; recommended for Jarvis scholarship, value £40, W. P. Wigglesworth.

*School of Design.*—Andrew Oliver prize, value £5 5s., F. P. M. Woodhouse; second prize, value £2 2s., C. J. Brandon.

*Certificates for Association's Two-years' Course.*—H. E. Mills, K. S. Meager, W. Bollandsee, F. A. McEvoy, V. J. Wanning.

In conclusion, Mr. Mackenzie said he wished again to congratulate the masters and students for the excellent results of their labours. He thought the Association had good reason to be proud, in the first place, of the members and students who are serving their country, and in the second of those who have "carried on" so well at home. To those leaving the school he would say, always remember the value of hard work. No good architecture is

produced easily, and having started on an architectural career with the excellent foundation which so few of their elder brethren had the advantage of, they should remember that this was only the beginning and that there is always more to be learnt by criticism and example. Theirs was a progressive art, and they were all students until they ceased to practise.

Mr. Robert Atkinson, headmaster, proposed a vote of thanks to Mr. Mackenzie, which was enthusiastically carried.

### WARGRAVE CHURCH.

It will be remembered that this church was burnt on June 1, 1914. The fire was the work of incendiaries. As the church had been very badly restored, there was very little of interest before the fire except an old Norman doorway in the north wall of the nave, which was fortunately uninjured. A fine Jacobean pulpit was destroyed.

The restoration of the church was placed in the hands of Mr. G. H. Fellowes Prynne, F.R.I.B.A., diocesan architect for Oxford, and the reconsecration took place on Saturday, July 22.

It is strange that although everything inside the church was destroyed, yet the fire was the indirect cause of opening up features of great architectural and archaeological interest, of which no one living had any previous knowledge. Indeed, these discoveries add a new page to the history of Wargrave. They are as follows:—

1. *From the rough chalk rubble and flint-coursed work* found beneath a thick coating of plaster on the lower part of the north and south tower walls it seems quite evident that these walls were part of a very early, probably eleventh-century tower, which was placed at the west end of the church of that period.

2. *The circular-headed arches with plain square soffit, and rubble piers with chamfered quoins and impost.*—These apparently formed the northern arcade of a church of the same date as the original tower. The external Norman archway, which was fortunately uninjured by the fire, was evidently built into this earlier arcade at a later date—viz. about 1160 to 1180. Remnants of a thirteenth-century doorway were found in the walling that filled one of the other original archways, but as the wall was in a very weak and cracked condition this remnant had to be built in.

Former restorations had evidently obliterated any other remains of a southern wall or arcade of the same date, and considering that in two previous restorations window openings of various sizes had been cut right through the old arcade, it is fortunate that sufficient stone was left to indicate its original position.

The brick casing of the tower has the appearance of being carried out at two different periods, judging from the size of the bricks and general character of the work, but no records have been found to show when the casing was put in hand, although it is known that four of the bells were cast in 1668.

3. *In the north walls of the north transept or chantry, better known as the Bear Place Pew, an aumbrey or Sacrament hatch was found beneath the plaster.*—This is especially interesting from the fact that it contains a thick oak shelf with a small hand hole at the top closed by a sliding shutter. The space above the shelf was probably hidden from the front so that anything pushed up from below could not be seen.

4. *A circular sinking with an early coloured cross and border painted on a plaster ground.*

5. *A small early Norman circular carved head.*—The exact form of the original church can at the best be a matter of surmise, but it seems that there was a north aisle and that the tower stood centrally west of the nave. Suffice it to say that in the present restoration the architect has most carefully preserved these very interesting features, almost exactly as they were. With the exception of the lower portion of the north wall of the nave and the north transept, the whole of the remaining portion of the church has been rebuilt upon the same general

foundation lines as the former church, with the addition of an increased sized chancel, south aisle chapel, new vestries, organ chamber, and north and south open-timber porches. Externally, looking from the south-east, the church has much the same general appearance as in the past.

It was not unnaturally the wish of the Committee that this should be so, but as the greater part of the church had of necessity to be rebuilt, it was felt that the inconvenience of the cramped chancel vestries on the previously restored lines should not be resorted to merely for the sake of sentiment, and it was therefore decided to increase the length and width of the chancel, the former by extending the sanctuary wall eastward, and the latter by opening up arches on either side, so that the back choir seat could be under each arch. The arch on the north side opens into the new organ chamber, whence extend good-sized clergy and choir vestries, underneath which is the blowing and heating chamber. That on the south side opens into a chapel formed by the extension of the south aisle eastwards, thus bringing the Rhodes monument within the church. These, together with the north and south porches and new buttresses, form the only actual additions that extend beyond the existing foundations.

Externally the walls are faced with flint, and all the dressed stone is Portland. The brick-facing of the tower has been repaired with similar narrow bricks and carefully pointed, and the design of the original windows and louvres reproduced in Portland stone. The parapets and pinnacles had to be renewed.

Internally the contrast between the new and old church is somewhat more marked in effect. In the first place it is much lighter, as only three windows are filled with stained glass. Also a large four-light has replaced a small three-light window at the west end of the south aisle. The clear lead glazing, however, through which the green foliage of the surrounding trees is reflected, gives such a quiet and pleasant effect, that the need for stained glass was seldom, if ever, less felt. As the east windows are, through the generosity of Mr. Cain, filled with stained glass, by Messrs. James Powell & Sons, there is no glare looking eastward.

The walls are plastered, with chalk stones of the ancient work showing through, the columns and dressings generally being in Corsham Down stone. The whole of the roofs are carried out in English oak, those of the nave and the aisle being of open timber construction, with tie beams and carved hammer beams. The chancel roof is of barrel form, with horizontal and vertical ribs and carved bosses at the intersections.

The nave is 69 feet 6 inches in length by 25 feet wide, the chancel 38 feet long by 19 feet wide. The accommodation, with extra seats, is for about 450 adults.

Elaborately carved panelling surrounds the lower part of the sanctuary walls, into which are inserted shields bearing various emblems. The paving is of rich varied coloured marbles, the steps being carried out in white Sicilian marble. Altar, altar rails, credence table, and carved oak choir stalls, with richly traceried north and south screen at the back, carried out in late transitional fourteenth century Gothic character, all tend to render the eastern portion of the church very beautiful in effect. Having in view that the pulpit of the destroyed church was of Jacobean style, the architect has designed a pulpit (presented by Mrs. Oliver Young) in this style, and the seating throughout the church is in character with the same.

The old Perpendicular font, which was for many years in disuse, is now occupying its proper place in the baptistery, which has been formed under the tower. This baptistery is panelled in oak. A portion of some old ironwork, from which was originally suspended a fine Dutch brass candelabra (destroyed), has been restored and retained for use to suspend a cover for the font. The design for this is hanging in the church. A very fine peal of eight bells has been hung in the restored tower by Messrs. Myers & Stainbank, and a new clock has

been given, the work of Messrs. Gillett & Johnston. The old figure face has been used again.

The work has been successfully carried out by Messrs. Walden & Cox, builders, of Henley, and the whole of the oak seating and panelling was also executed by them. Messrs. Kinnell were the contractors for the heating, and Messrs. Waring & Withers for the electric lighting of the church.

## WAR DESTRUCTION IN FRANCE.

THE report made by M. Malvy, Ministre de l'Intérieur, and just published, on the destruction of buildings in 754 communes in France, caused by the events of war, is interesting as showing the extent of damage caused by modern warfare to a portion only of the invaded country which has suffered from the disastrous effects of artillery. And when it is considered that this report does not include 2,554 communes still occupied by the enemy, of which 247 have, owing to their close proximity to the Front, been evacuated of all civil population, the damage which will probably result from the Allied offensive and the retreat of the enemy forces to these remaining communes, can be imagined.

The investigation has been made in such a manner as to allow the preparation of a report on the general state of the destruction caused to private houses and buildings, as well as to public buildings, works, and industrial buildings.

The departments comprised in the report are the Nord, Pas-de-Calais, Somme, Oise, Seine-et-Marne, Aisne, Marne, Aube, Meuse, Meurthe-et-Moselle, and the Vosges.

The number of communes which have suffered by the war as regards the destruction of buildings is in the above departments 754, divided up as follows: Nord, 23; Pas-de-Calais, 71; Somme, 34; Oise, 59; Seine-et-Marne, 35; Aisne, 51; Marne, 258; Aube, 2; Meuse, 59; Meurthe-et-Moselle, 109; Vosges, 53.

The larger proportion of these communes is agricultural in character. The number of those in which the proportion of agricultural buildings destroyed, compared with the total of buildings destroyed, exceeds 50 per cent., is 299, or 40 per cent.

As regards the 754 communes in which the buildings have been totally or partially destroyed, the number of buildings which have suffered by the war is 42,263, of which 16,669 are completely destroyed and 25,594 partially only.

Among the departments which have most suffered may be mentioned: the Marne, with a total of 15,106 houses destroyed, of which number 3,500 completely; the Pas-de-Calais, with a total of 13,450 houses destroyed, of which 6,660 entirely; the Meurthe-et-Moselle, with 4,930 houses destroyed, of which 1,690 entirely.

The proportion of the total of buildings destroyed compared with the total of the buildings in the communes exceeds 50 per cent. for 148 communes. It attains and exceeds 80 per cent. in 74 communes, and is less than 50 per cent. in 607 communes, of which about 256 show a destruction of about 5 per cent. only.

The report also gives the proportion of buildings devoted to public services which have been destroyed, as well as works and industrial buildings. The information given respecting the above may be summed up as follows: Public buildings suffered destruction in 428 communes, and 221 town halls, 379 communal schools, 331 churches, 308 various public buildings, and 60 public works of art suffered total or partial destruction.

Amongst the buildings destroyed or partially damaged, 56 have been notified by the Prefets as being classed in the list of monuments historiques, or historical buildings. In the first rank of these are the Hôtel de Ville and the Archives of Arras, the Cathedral, the Archbishop's Palace, the Church of St. Remy, and the Hôtel de Ville de Reims, &c.



As regards manufacturing works and industrial buildings the number destroyed is 330. These establishments occupied and provided for about 58,000 workers with their families.

### WORKMEN'S COMPENSATION ACT.

BEFORE the Master of the Rolls, Lord Justice Pickford, and Lord Justice Warrington, in the Court of Appeal, on July 20, Messrs. George Trollope & Sons, builders, appealed from an award of the Judge of the City of London Court, sitting as arbitrator under the Workmen's Compensation Act, 1906, in favour of a man named Cox, who was employed by them as a scaffolder. The case raised an important question as to the computation of earnings.

Mr. Ellis Hill was counsel for the appellants, while Mr. Rigby Smith, K.C., M.P., and Mr. E. F. Lever represented respondent.

It appeared that Cox, who was receiving a wage of 8½d. an hour, met with an accident by which he was incapacitated. He had been employed by the respondents for seven weeks during the winter, and his average weekly earnings during that period amounted to £1 7s. 8½d. There was evidence that scaffolders were normally employed for short spells by varying employers, but that there was generally enough work to keep them continuously employed on different jobs. The average earnings of a scaffolder in the locality were £1 15s. 9½d. per week, as longer hours were worked in summer than in winter. The Judge of the City of London Court held that it was impracticable to compute fairly the rate of remuneration of the workman by reference to his earnings during the seven weeks, having regard to the fact that the average during one year was the dominant principle to be applied, and that the average earnings varied in the summer and winter. He therefore awarded 17s. 11d. a week compensation, being 50 per cent. of the average weekly earnings of a man of the same grade in the same district. Against the award Messrs. Trollope & Sons now appealed.

On behalf of the appellants, it was submitted that as the workman had been engaged in the same work with them for seven weeks, all that had to be done to ascertain his average weekly earnings under Schedule I., paragraph 1 (b) of the Act was to add up the wages received by the man during the seven weeks and divide by the number of weeks. The paragraph in question contained the following:—

"Where total or partial incapacity for work results from the injury, a weekly payment during the incapacity not exceeding 50 per cent. of his average weekly earnings during the previous twelve months, if he has been so long employed, but if not, then for any less period during which he has been in the employment of the same employer."

Appellants contended that it was only when it was impracticable to do this that the Court could go outside those provisions and have resort to another paragraph in the Act (Schedule I., par. 2 (a)) which is in the following words:—

"For the purposes of the provisions of this schedule relating to 'earnings' and 'average weekly earnings' of a workman, the following rules shall be observed: (a) Average weekly earnings shall be computed in such manner as is best calculated to give the rate per week at which the workman was being remunerated. Provided that where by reason of the shortness of the time during which the workman has been in the employment of his employer, or the casual nature of the employment, or the terms of the employment, it is impracticable at the date of the accident to compute the rate of remuneration, regard may be had to the average weekly amount which, during the twelve months previous to the accident, was being earned by a person in the same grade employed at the same work by the same employer; or if there is no such person so employed by a person

in the same grade employed in the same class of employment, and in the same district."

The Master of the Rolls, in delivering judgment, said these two paragraphs, although difficult to construe, had been construed by the Court during a number of years, and it was not open to the Court to depart from the construction. If the Act had stopped with the first quoted paragraph, it would have been a short answer in favour of the employers to say that the workman had worked for seven weeks, and that this was sufficient to admit of a computation of his average weekly earnings. But the other paragraph, which gave a definition of "earnings" and "average weekly earnings," and stated the rules to be observed in ascertaining them, had laid down the dominant principle to be observed in the words: "average weekly earnings shall be computed in such manner as is best calculated to give the rate per week at which the workman was being remunerated." That (said his Lordship) could not mean that the Court was to work out mathematically a simple average. The mathematical computation was all that had to be made in the case of employment extending over twelve months, but when it came short of that the Court was told to compute the average weekly earnings in such manner as was "best calculated to give the rate per week at which the workman was being remunerated." Again, whose duty was it to say whether it was impracticable to compute the compensation? That was a matter for the County Court Judge, and, if he had not misdirected himself, this Court could not interfere. In this case there had been no error in law such as entitled them to interfere. His Lordship had not thought it necessary to base his judgment on the point relied on by the learned judge in the Court below—namely, that the period of twelve months was the dominant period. He did not decide that it was not, but he preferred to base his judgment on a different ground, and in his view the appeal must be dismissed.

Lords Justices Pickford and Warrington expressed agreement, and the appeal was dismissed with costs.

### THE OPEN SPACES OF LONDON—PAST, PRESENT, AND FUTURE.\*

By LAWRENCE CHUBB.

(Continued from last week.)

THE general results of the movement for preserving London commons are remarkable. There were in 1865 some 16,320 acres of common land within the Metropolitan Police District. Much of this had been illegally enclosed, and the manorial lords claimed the right to enclose the whole without regard to the wishes of the community. Thanks to the crusade inaugurated by the Commons' Preservation Society, practically all enclosures were thrown out, and I estimate that less than 200 acres have become private property. Of the amount remaining, about 14,000 acres have been definitely secured by the suits to which I have referred, or have been purchased or regulated as public open spaces. About 2,300 acres remain to be dealt with in a similar way.

It is interesting, too, to note that the despairing cry of the villager of old has aroused the public conscience. It was formerly said with truth that

We punish swift the man or woman  
Who steals the Goose from off the Common,  
But let the greater Villain loose  
Who steals the Common from the Goose.

Now the land grabber is rightly appraised and generally penalised, for the villager may look for justice and for the whole-hearted support of men and women who realise that, even if it never grows an ear of corn, a common is a national asset which should be defended against aggression.

\* A lantern lecture delivered before the London Society in the Hall of the Royal Society of Arts, Adelphi, W.C.

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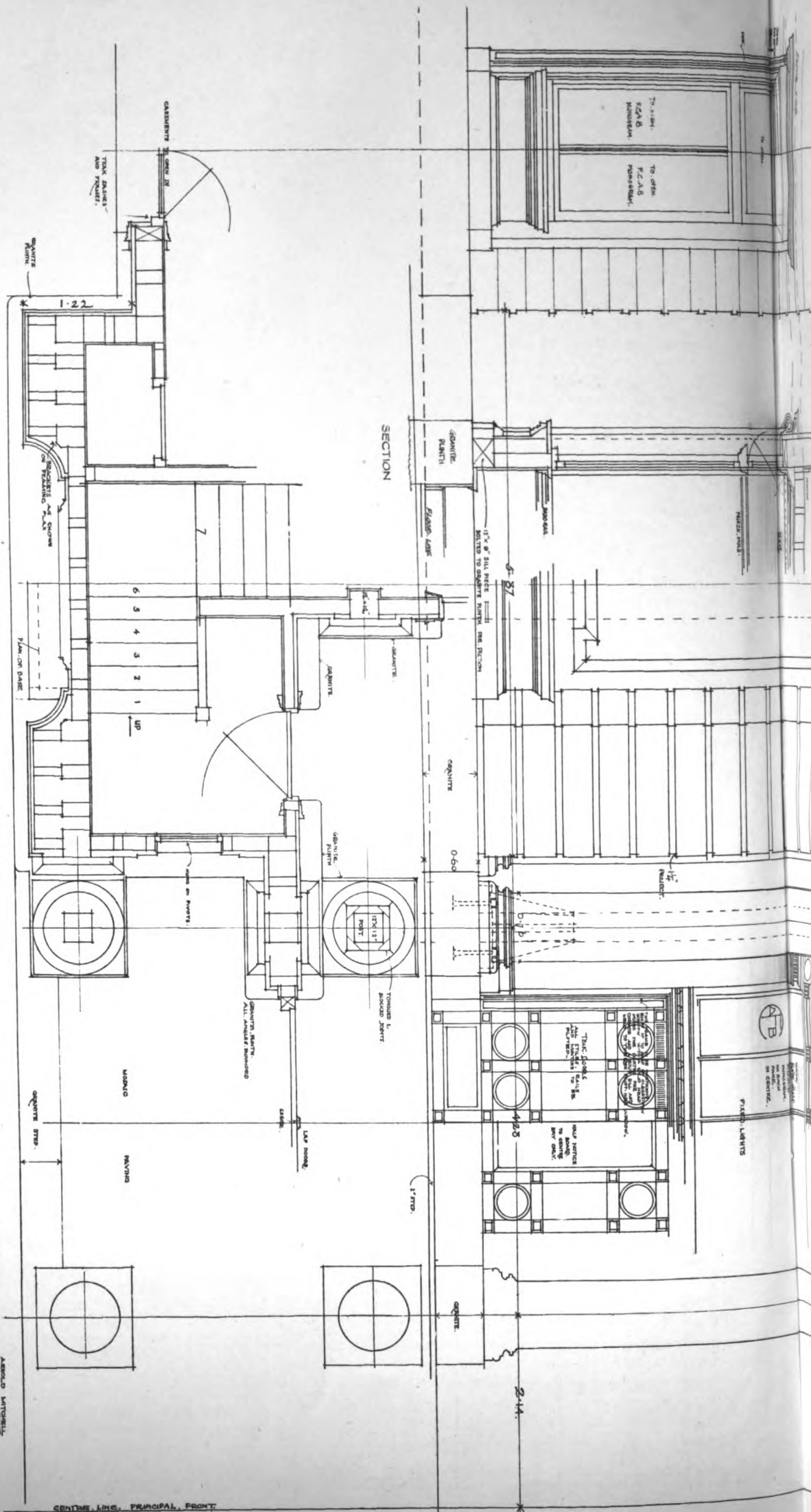
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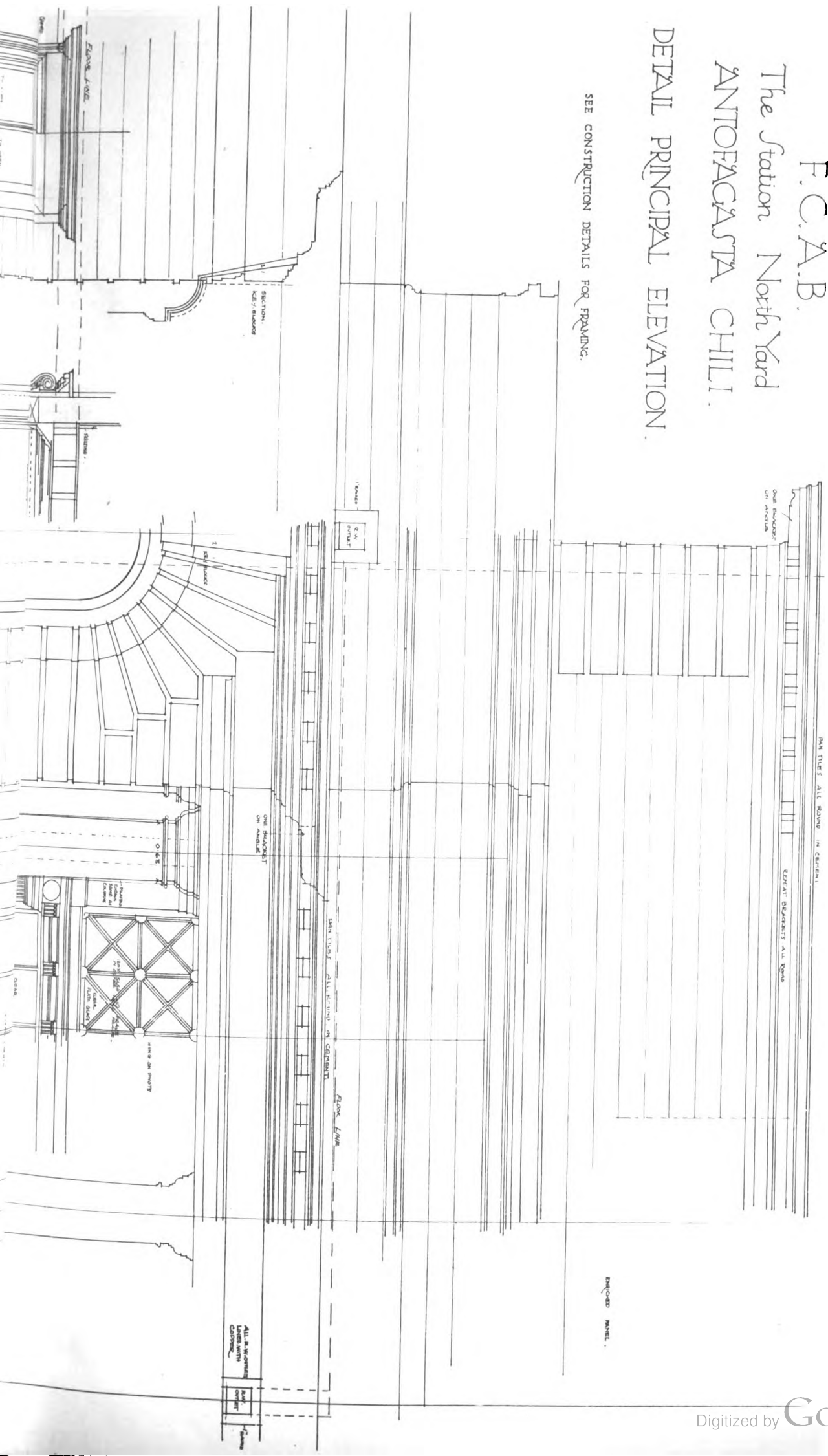
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The Architect, July 28<sup>th</sup> 1916.

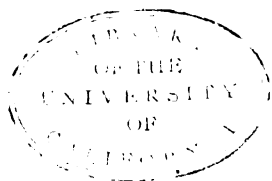
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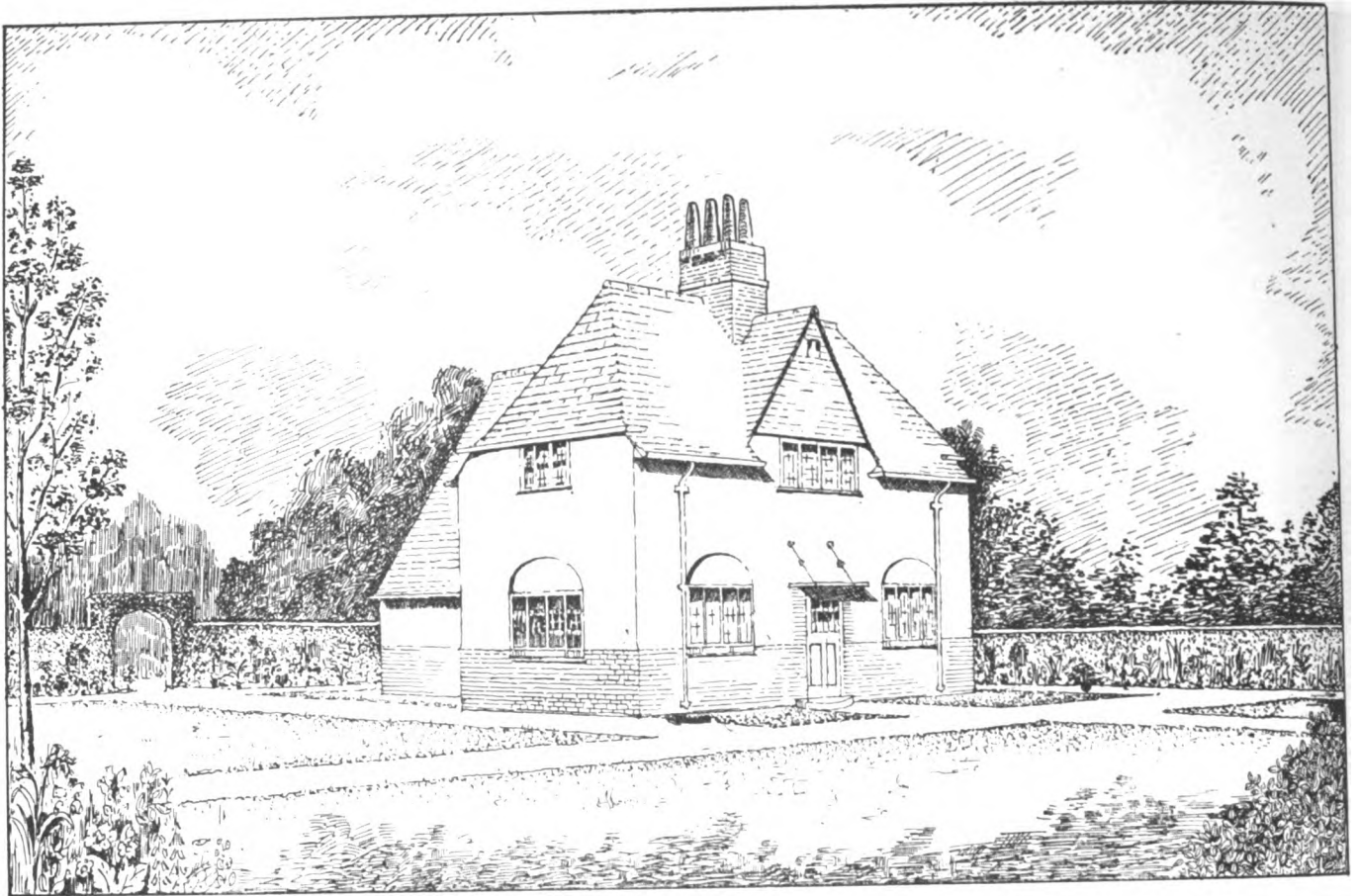
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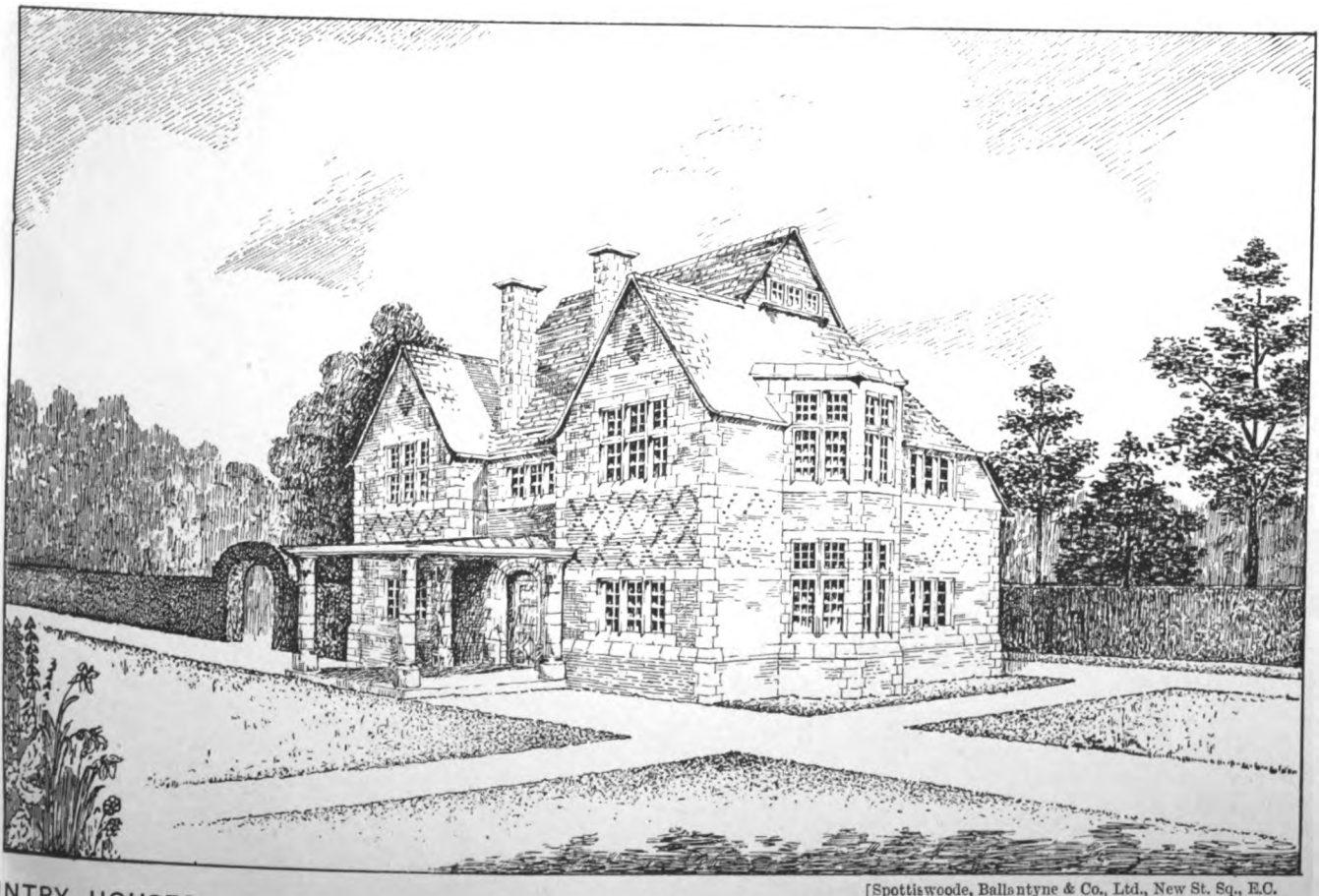
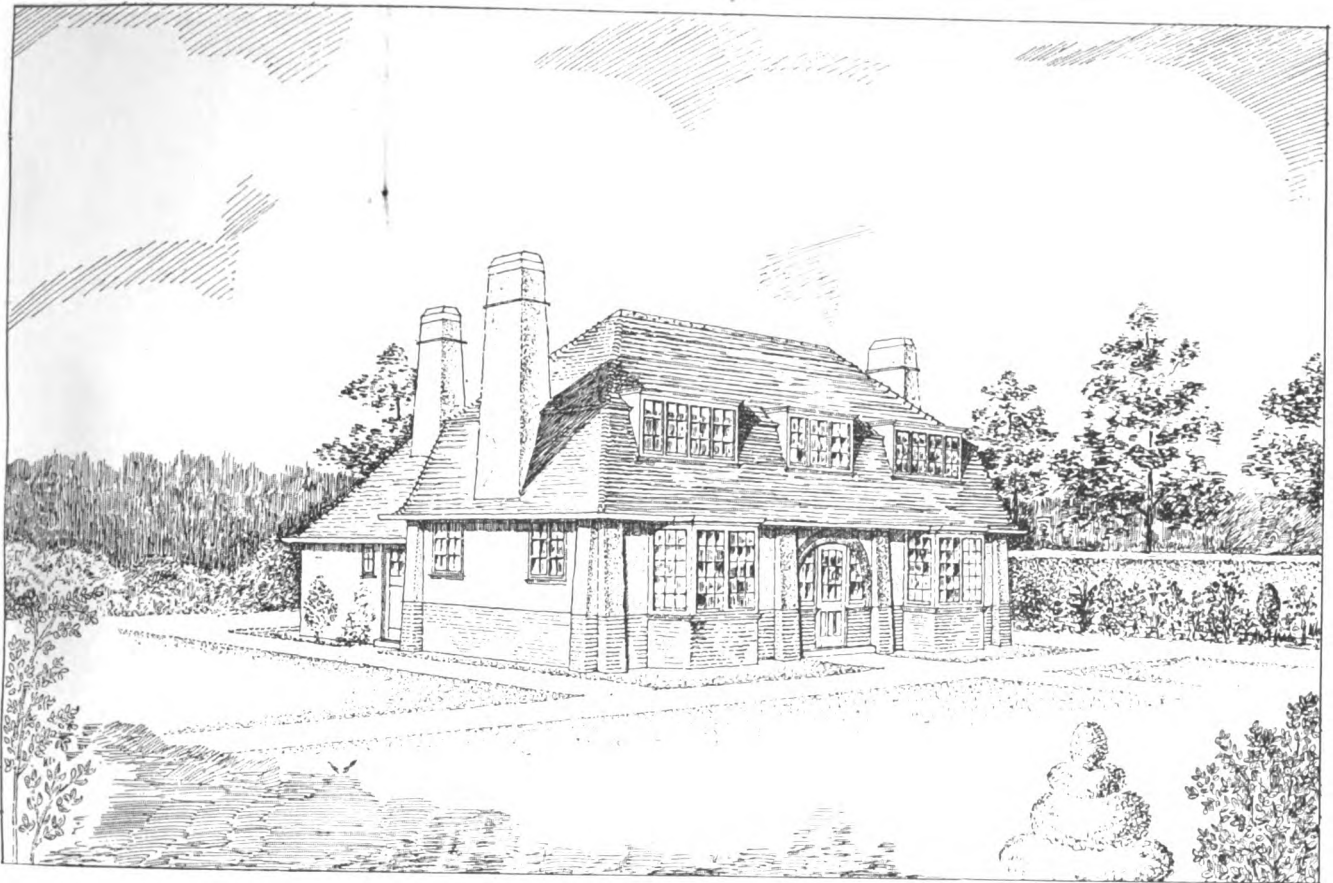






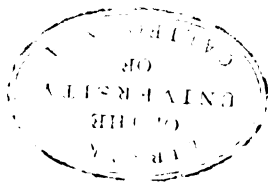


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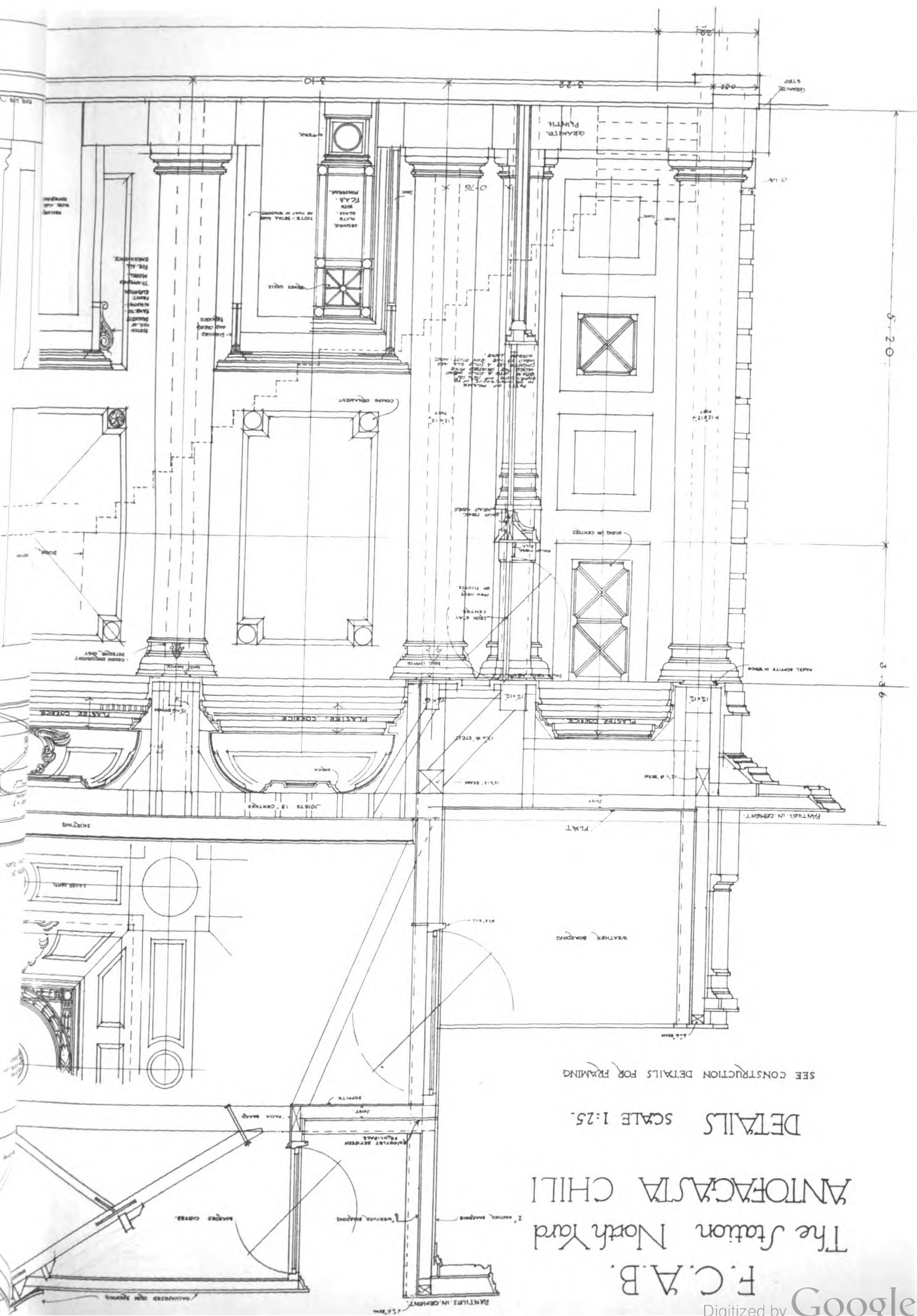






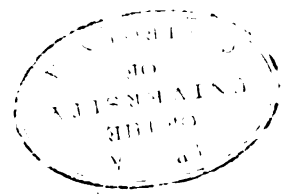






CROSS





Side by side with the movement for the protection of commons there has developed a growing appreciation for parks, playgrounds, and ornamental gardens, and our civic possessions of this kind have multiplied during the last thirty years.

In the majority of cases these open spaces have been saved by means of purchase schemes formulated by local committees under the guidance of the open spaces societies—the Commons and Footpaths Preservation Society, the Kyrle Society, and the Metropolitan Public Gardens Association.

In all attempts of this kind, however, owing to our haphazard methods of meeting emergencies when they arise, instead of anticipating them by intelligent steps taken in advance, the public are at a great disadvantage.

What often happens is this. The news leaks out that an old mansion with meadows and hoary trees has fallen into the hands of a speculative builder, or of a stranger inspired by no local traditions, but who frankly announces that he intends to make the utmost profit out of his bargain. Letters of protest appear in the local papers, and if successful in arousing alarm or enthusiasm, a group of citizens determines to attempt to save the land for recreation and pleasure. A committee is appointed and an effort is made to secure reasonable terms of purchase. Too frequently the new owner is found a veritable Shylock. He looks upon the public as a goose which will ever lay golden eggs, and the price he asks is prohibitive. If, however, terms can be arranged, the next step is to secure contributions from open space enthusiasts and societies, and from residents in the neighbourhood. Then the Borough Council is approached for aid, and finally, and after half the purchase money has been secured, a deputation waits upon the Parks Committee of the London County Council. It always meets with a sympathetic reception, and when the valuers of the Council report favourably upon the price of the land and a good case can be made out, the help of the County Council in acquiring the land and in laying out and maintaining it can be anticipated.

It is no less than is due to say that most Borough Councils and the London County Council have manifested a notable and praiseworthy desire to aid private enterprise in securing open spaces, and in some cases the County Authority have provided the whole of the purchase money. They have earned and every day receive the thanks and blessings of tens of thousands of people, young and old, for their policy, for without its parks London would indeed be a dreary wilderness.

It sometimes happens that public-spirited citizens, like Sir Sydney Waterlow, provide open spaces. In other cases great landowners like the Crown, or Ecclesiastical Commissioners, or the Trustees of Dulwich College have done so too. And it is wise policy for any large landowner to set aside part of his estate for the recreation of future residents. It adds at once to the value of his remaining property, for the principle of betterment applies with peculiar force to land adjoining areas which can never be built upon. Dulwich Park is a case in point. It is a space of rare beauty which is gradually being hemmed in by houses, the occupiers of which would probably never have come to the neighbourhood had it not been for the Park.

One point of vital importance to be borne in mind is that once a piece of land has been acquired at public expense and dedicated as an open space it should be sacred from interference. No great roads should be driven through it, such as the recently-projected arterial roads, which, if persisted in, would have greatly marred the beauty and utility of Epping Forest. Nothing should be done to disturb the public confidence in its cherished belief that an open space is an inviolable possession.

Small playgrounds, as, for instance, that of Spa Fields, Clerkenwell, for the use of children have been wonderful successes, and it is a joy and inspiration to

see the pleasure they afford. So, too, have been the disused burial-grounds. The possibility of turning such spots into gardens was first foreseen by the incumbent of St. George's-in-the-East, and was taken up with enthusiasm by the Kyrle Society, which has done so much to brighten the lives of the poor. The Metropolitan Public Gardens Association, founded by the Earl of Meath in 1882, has made this work peculiarly its own, and has been able with general approval and marked success to transform many sadly-neglected churchyards into blossoming gardens. St. Botolph, Aldgate, is one of these, Stepney churchyard another, and the seats provided by the Association in this and other open spaces are a boon to the weary City workers. The graveyard attached to Guy's Hospital was a rubbish heap before it was transformed by the Association, and Stepney churchyard affords an apt illustration of the utility of this type of open space. The Association, too, has equipped many children's playgrounds with simple gymnastic apparatus, and Lord Meath is to be warmly congratulated upon the results of his work.

(To be concluded.)



[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### The Channel Tunnel Problem.

SIR,—An article in the "Daily Mail" of a few days ago, entitled "The Channel Tunnel Problem," brought to my mind considerations which although perhaps a little far-fetched, yet in the main are true and worthy of attention.

The problem was really divided into three. Firstly, that of overcoming the difficulties to be encountered in the construction of the tunnel; secondly, the financial problem, and, thirdly, the problem of the usefulness or the danger of the tunnel in case of war. The first two problems appear to have been theoretically solved in a satisfactory manner; the third still remained a matter for doubt and discussion.

I put the above in the past tense, for it seems to me more than evident that the three old problems have become entirely new ones to-day. The engineers who drew up the scheme of construction some years ago, in peace time, and who designed and calculated then for the transport of peaceful citizens between England and France, for the rapid transport of light or perishable goods, and perhaps for the possible transport of a small army of soldiers, those we had promised to France in case of war, had little idea at that time of the extraordinary development which a few years would bring about in the methods and machinery of modern warfare, and the proper necessities to meet such warfare. The financier looked at the matter in the way of the return he would receive for his investments from the passenger and goods traffic after a certain number of years. The military authorities chiefly considered the danger such a tunnel might be to England in the case of a European war, and hardly realised then what such a conflagration as is now raging would mean.

But now all these considerations are very much changed. The engineers will have to put aside the old designs and keep them as a souvenir of pre-war days, and now proceed anew on quite fresh lines, discarding the old ideas born of peace time, and basing the new scheme and designs on the problems to be very carefully considered of the probabilities of the further progress of the science of warfare both on land and undersea during the coming years. The financier will have to consider whether his money will be returned to him with profit as he expected it would in the case of the old peace-time scheme, or whether the rapid progress of science in the development of air and sea machines will not,

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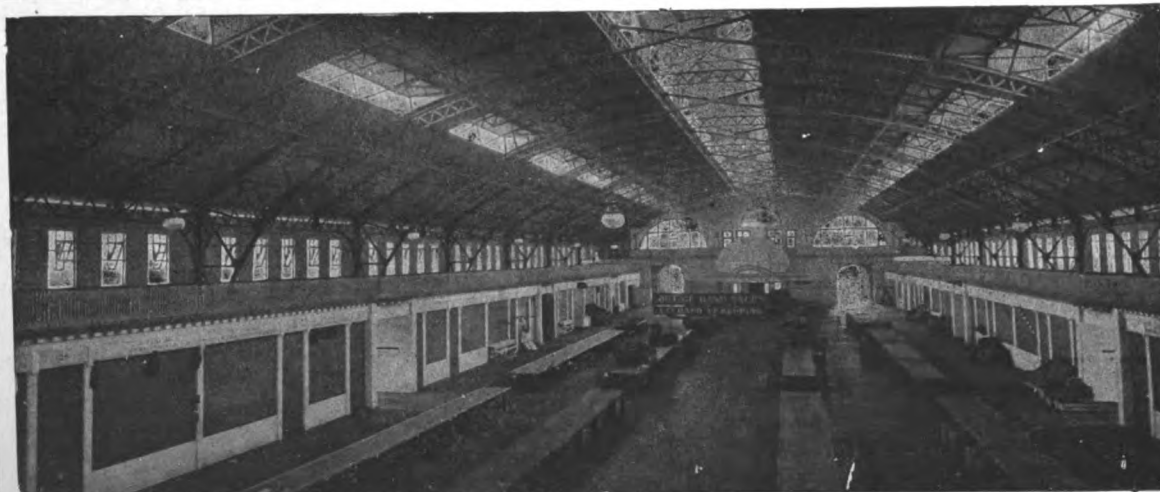
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in a few years, proclaim the tunnel as "vieux jeu," useless for super-modern necessities, and useful for war purposes only, a tunnel to be scrapped under the bed of the old Channel, or perhaps in peace times to be used by those who would prefer a walking trip to the Continent to the new Air Service or Under-sea Service of some few years to come. The military authorities will want to know whether the tunnel as now designed will be sufficiently protected against the attack of some new scientific weapon, or of any use in transporting from one side to the other the probably more enormous artillery of the future, and possibly some more bulky kind of weapon for land, air, or under-sea. In any case the matter should be very carefully thought out anew, and every possibility of the early future taken into account. The scheme should now be studied on an entirely military basis, carefully considered and designed in a manner which will provide for all the exigencies of the future war, for possible additions and modifications, for under-sea inlets and outlets, for the possibility of filling one of the tunnels with water if useful for the secret passing of submarines, &c. In ordinary peace times the war-designed tunnel would be employed for the usual traffic.

But, after all, does it not really seem that since the war the scheme which was thought so wonderful is already a little old-fashioned and almost behind the times, when perhaps in a very few years we shall have a channel submarine service, an underwater railway or ferry, with the probability of a competing aerial cross-channel service at reduced rates?—Yours, &c.,

ARTHUR VYE-PARMINTER, Architect, Paris.

#### Aberdeen versus Foreign Granite.

SIR,—I do not want unnecessarily to prolong this correspondence, but I submit that you are not entitled to say that I give only "part of the truth." My contention, for all practical purposes, is correct.

I have to-day examined the price lists of all the foreign granites (not the Norwegian granites only) usually sold in Aberdeen, and I find that with two exceptions the foreign granites are dearer than the native stones, in many cases enormously dearer.

The two exceptions I submit prove my rule. They are:—

(a) A grey granite which cannot be used for polished work owing to blemishes, varying colour, &c.

(b) A grey granite the supply of which, even before the war, was so precarious and scanty that it was quite unsafe ever to undertake an order for it.—Yours, &c.,

MERCHANT.

July 20, 1916.

[We are glad that "Merchant" now recognises that we do know something about the granite business. The number of foreign granites that are dearer than the native stones is, of course, immaterial to the fact that cheap foreign granite does compete with Aberdeen granite. Similarly, in the timber market there are a large number of foreign ornamental woods that are dearer than British fir, but that has not prevented foreign timber from killing British forestry as a commercial venture until the present crisis.—ED.]

### BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

#### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### BUCKINGHAMSHIRE.

*Lane End.*—Workshop and store, for Messrs. R. Smith & Co. Mr. A. W. Nash (of High Wycombe), architect.

*Marlow-on-Thames.*—House: additions for Mr. A. L. Baldrey. Mr. A. Winter Rose, architect, 15 Great George Street, London, S.W.

*Wendover.*—Cottage for Mr. A. A. Hudson.

##### DERBYSHIRE.

*Matlock.*—Two houses, Lumsdale. Mr. J. W. Wildgoose, builder, Rutland Street, Matlock.

##### DEVON.

*Torquay.*—The "Grand" Hotel: additions and alterations. Mr. F. C. R. Johnson, architect, 8 Cary Parade.

##### DURHAM.

*Jarrow-on-Tyne.*—Premises, Ferry Street: alterations for Mr. J. Barrow.

##### HERTFORDSHIRE.

*Letchworth.*—Foundry, Dunham's Lane: extension for Messrs. Kryn & Lahy, Ltd.

Petrol store, Baldock Road, for the First Garden City, Ltd.

##### HUNTINGDONSHIRE.

*Fletton.*—Four villas, St. Margaret's Road, for Mr. W. Brummett (of Woodston).

##### KENT.

*Chatham.*—Bungalow, Maidstone Road, for Mr. Osman. No. 85 Dale Street: part re-building for Mr. E. Robson.

Houses, Rook Road, for Mr. E. G. Higgins and Mr. W. H. Buttonsshaw.

##### LANCASHIRE.

*Irlam.*—Proposed U.M. church and school.

*Manchester.*—Police Station, Goulden Street: garage. Mr. H. Price, A.R.I.B.A., City architect, Town Hall. Messrs. Burgess & Galt, contractors, Upton Street, Ardwick.

*Morecambe.*—Proposed town hall, &c., Poulton Hall Estate.

*Oldham.*—Proposed (memorial) church of SS. Matthew and Aidan, Roundthorn Road.

*Ramsbottom.*—Paper Mill, Stubbins: extension for Messrs. Crompton & Bros, Ltd.

##### SOMERSET.

*Yeovil.*—Boiler house, Alexandra Road, for Messrs. Ewens & Robbins.

"Three Choughs" hotel: alterations to stables, for Woborne's Almshouses Memorial Trustees.

##### SURREY.

*Barnes.*—No. 217 Upper Richmond Road: alterations for Mr. C. E. Belville.

Warehouse, Lonsdale Road. Mr. E. T. Hall, F.R.I.B.A., architect, 54 Bedford Square, London, W.C.

*Beddington.*—Kennels, Beddington Lane, for Messrs. Spratts, Ltd.

*Farnham.*—Proposed Parsonage, Badshot Lea.

##### SUSSEX.

*Hove.*—No. 13 Seafeld Road: conversion into maisonettes, for Mrs. D. Williams.

##### WARWICKSHIRE.

*Foleshill.*—St. Paul's Mission church, Holbrooks.

##### YORKSHIRE.

*Bradford.*—The Cartwright Memorial Hall: alterations for the Corporation.

*Gildersome.*—Mill, for Messrs. A. & A. Brooke.

*Grimethorpe.*—Twenty-four houses for the Holroyd Coal Company, Ltd.

*Linthwaite.*—Two shops, Jovil, for Mr. A. Hoyle.

#### SCOTLAND.

*Dundee.*—Wallace Foundry, Arthursstone Terrace and Erskine Street: additions and alterations for Messrs. Robertson & Orchar, Ltd.

Property, Hunter Street: alteration for Messrs. H. & F. Thomson.

*Dumfermline.*—Y.M.C.A. Hostel, Rosyth.

*Edinburgh.*—Electric-power station, McDonald Road: additions.

Works, Fountainbridge: additions for the North British Rubber Company.

*Glasgow.*—Buildings, Maxwell Road, Shieldhall, for Messrs. John Woyka & Co., Ltd.

Buildings, Rigby Street and Old Edinburgh Road, for Messrs. W. Beardmore & Co., Ltd.

Canteen building and compressor house, Fairfield Yard, for the Fairfield Shipbuilding and Engineering Co., Ltd.

Engineering shop, &c., Petershill Road, for Messrs. A. & J. Main & Co., Ltd.

No. 102 Cambridge Street: conversion, for Mr. John Gibb.

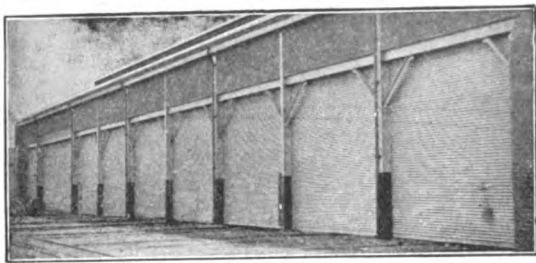
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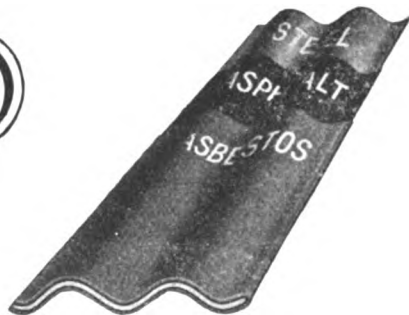
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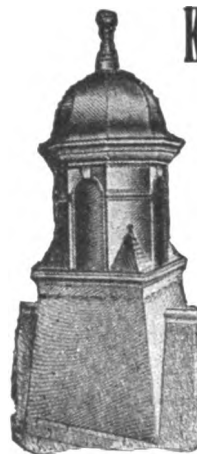
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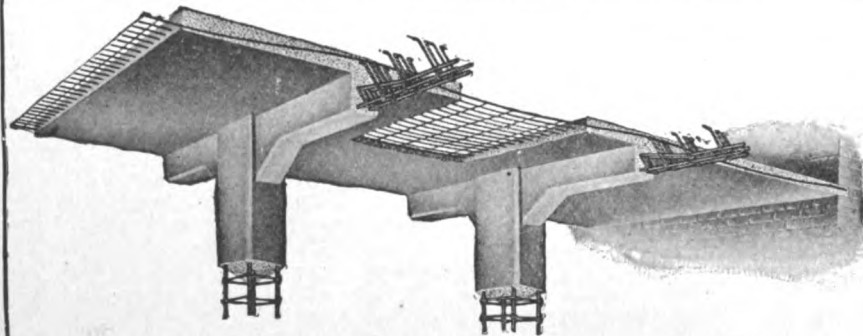
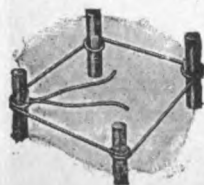
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# THE ARCHITECT

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## EFFLORESCENCE AND PAINT.

AMONGST the troubles to which those connected with the building trade are subject, one of the most annoying, because it comes so prominently before the eyes of the building owner—and his wife—is the spoliation of beautifully finished wall surfaces, whether of oil-paint, distemper, or even wallpaper. Sometimes the trouble takes the form of discolouration, usually in patches; at other times even worse effects are produced. Washable distempers develop treacherous tears; ordinary distemper flakes off; oil paint manifests an eruptive rash; wallpaper peels.

Those who are wise and experienced in building know that such unpleasant results are most prone to occur when a decorative finish has been put upon walls that are damp, but it is not universally recognised that the moisture is not the proximate but an accessory agent in producing the trouble. The water, in the majority of cases, which works its way out from the wall acts as a carrier of the disease; it bears in solution the active matter that works the mischief.

The recognition that moisture is a predisposing condition likely to lead to trouble is efficacious in dictating patience in waiting till the brickwork is bone-dry before even the plastering is carried out, and further until this latter coating has similarly become innocuous before the final decorative finish is applied. If sufficient time is allowed for the underlying materials to attain their maximum aridity, then, unless they are of a peculiarly hygroscopic nature, it is usually safe to decorate.

But the immunity of a perfectly dry subjacent basis for the decorative material, whether paint, distemper, or paper, must not be allowed to induce the inference that a similar freedom from danger can be obtained by damping back the moisture. Boiled oil with plenty of turpentine, water-glass, and other specifics, even size, have been prescribed with the idea of stopping exudation, but too often without success; and even when success has been apparently obtained, the reason has probably been that the attacking forces have been less strong than were anticipated.

The deleterious action which the moisture in a wall assists in developing is that of the crystallisation of substances which it holds in solution or their chemical reaction upon components of the decorative finish. Crystallisation manifests itself in an incrustation or efflorescence whose action may be either physical or chemical, or both, in damaging the paint, paper, or other finishing material.

Efflorescence on the exterior of newly-built brick walls is a common enough phenomenon, more frequently manifest with good brickwork than bad, and more likely to occur when cement mortar has been used than with lime mortar. It does not occur in the case of all bricks, and can be prevented in the case of those brick-earths that will normally produce it, by the use of certain chrome salts by the brickmaker.

Time and weather will eventually, with sufficient patience, clear away the disfigurement of efflorescence from external brickwork, and its removal can be hastened by brushing down, or more effectively by washing down

with a solution of iron sulphate, better known to the bricklayer as green copperas.

Efflorescence from brickwork is not, however, confined to external faces of walls, but occurs internally also, given the presence of moisture and of bricks that contain the crystallising salts. Usually these salts are of a strongly alkaline nature and, as we have already said, may cause damage either by physical or chemical action. When the action is physical its operation is manifested by blisters, eruptions, or flaking of the decorative finish. When chemical there is discolouration, sometimes over the whole surface, sometimes only in patches.

As the efflorescent salts are, as we have said, usually strongly alkaline, their neutralisation is obviously to be effected by the use of a mild acid solution, preferably capable of chemical combination of stable character, with which the brickwork should be washed before the plastering is applied or even after, if the mischief has not been sufficiently anticipated. We cannot always, nowadays, wait till our walls have become thoroughly dry before some sort of a finished surface is applied; though certainly, when time and patience will permit, this is the soundest course to adopt. There can be no efflorescence from a thoroughly dry wall. This is not to say that a wall which has become dry will always remain so. The one method of combating efflorescence which may be safely said to be always inadvisable is the attempt to keep it back by waterproofing the internal surfaces of a wall.

One very fertile source of trouble for the final decorative finish is found in the operations of the army of specialists or supplementary tradesmen whose activities bulk so largely in modern building. Gasfitters, plumbers, and the groups of so-called engineers who instal cur electrical services, our heating and our lighting, continually necessitate "cutting away and making good" of brickwork and plastering. These patches being often made in cement and hard plaster are more prone to efflorescence, and time is often not given them to dry out thoroughly. It is a curious point that some varieties of hard plaster, like brickwork in cement, are more prone to develop efflorescence or chemical reaction on paint and other coloured surfaces than ordinary lime plastering.

Discolouration of painted surfaces by chemical action of exuding solutions is a somewhat complicated subject. The first consideration is the nature of the dissolved substances which form the attacking forces. These are varied and frequently complex in composition, but usually contain alkaline salts of potash, soda, or lime. The next consideration is the composition of the pigments which are used in the decorative finish and their susceptibility to attack by the reaction of the salts contained in the brickwork or plastering. Information as to those pigments which are "fast" against alkaline reactions is to be found in various books dealing with pigments, such as "Paint and Colour Mixing," by A. S. Jennings.\*

Water paints, which include many so-called washable distempers are peculiarly liable to damage by efflorescent alkalies, containing, as they do, casein or other oleaginous matter, which is saponified by alkali. Therefore one does not escape from the destructive effect of efflorescence on decorative finish by using washable distemper. If a cheap form of decoration is to be used, with a view to its ultimate replacement when the wall is dry, ordinary distemper will do as well.

\* "Paint and Colour Mixing." A practical handbook for painters, decorators, paint manufacturers, artists, and all who have to mix colours. Comprising over 300 samples of actual oil and water-paints and water-colours of various colours, and upwards of 1,500 different colour mixtures, with seventeen coloured plates. By Arthur Seymour Jennings, Fellow of the Institute of British Decorators, etc. etc. Fifth edition. (London: E. & F. Spon, Ltd., 6s.)

Our final conclusion must be that the best course to pursue is to wait till the wall is dry before decorating; but when this course is inadmissible, then the nature of the efflorescence must be ascertained, and the proper means, in the circumstances, must be used to counteract its deleterious influence.

### NOTES AND COMMENTS.

"EAST is East, and West is West, and never the twain shall meet." And yet a correspondent of the "Manchester Guardian," writing from Tokio, on an interview dealing with the relations of Eastern and Western civilisations with special reference to that of Japan, quotes Sir Rabindranath Tagore as saying: "Do I think that Eastern thought, the Eastern outlook, can be reconciled with the mechanism of Western civilisation? I think it can and must be. In the East we have striven to disregard matter, to ignore hunger and thirst, and so escape from their tyranny and emancipate ourselves. But that is no longer possible, at least for the whole nation. You in the West have chosen to conquer matter, and the fine task of science is to enable all men to have enough to satisfy their material wants, and by subduing matter to achieve freedom for the soul. The East will have to follow the same road, and call in science to its aid.

"Whether this characteristic outlook of nations is a matter of race is a hard question. I know that in England my thoughts were not free, and I had to return to India for them to acquire their freedom. The colour of the sky, the air, the soil, all colour and shape thought, and help to make the philosophy of one nation different from that of another. Though I look forward to science and the mechanical arts of civilisation becoming a common possession of the whole world, I have no fear that the mind and soul of the whole world will become uniform, for these things are external like a garment, and do not touch the inner core of a people. I conceive a kind of federation of nations, in which each contributes its own characteristic philosophy."

The effect of environment on thought which Sir Rabindranath describes as affecting himself no doubt plays a large part in developing characteristics of race, and hence Kipling is right. It is not only the people who surround us when we go to a country across the seas that affect us. The atmosphere, say, of America, is so entirely different from that of England that we are in a very few days, even hours, conscious of a change in our mentality, in our outlook upon things, as well as in our habit of thought. Hence Japan or India can never become English, however completely they may acquire, as Sir Rabindranath says they are doing, the mechanical apparatus of Western civilisation. There is so much that is admirable in the national character of both India and Japan, in their religion and in their art, that we should deem it a catastrophe if they should attempt to change these essentials for an incompletely assimilated travesty of Western civilisation.

Salford is embarking on an ambitious scheme of town planning, embracing over 2,000 acres of the 5,200 included within the borough.

Salford lies mainly to the west of the river Irwell's circuitous course, but Higher and Lower Broughton are on the east side, and these districts have no natural line of separation from Manchester. The two residential districts are in Higher Broughton on the north side and in the Eccles Old Road district on the west. Between the two, in a thick bend, is a large indiscriminate area in which works, warehouses, shops, and crowded artisans' dwellings are jumbled together haphazard. This congested central area is apparently given up as hopeless for planning. Its character is settled—not finally perhaps, but for an indefinitely long time. The hope for the future is fixed on the still undeveloped outskirts and on an extremely important locality in the

neighbourhood of the Ship Canal. Looking backward, the town-planner deploras the fact that there was neither power nor prescience thirty years ago to prepare for the development of the Canal. Right in the line of the natural enlargement of the docks is the extension of the borough cemetery. The development of all this neighbourhood should have been made in the last quarter of a century, as it will be now made under a wisely guided Corporation scheme, to correspond with the development of the Canal and to provide room for some at least of the commercial undertakings which naturally centre at a great port.

If the proceedings of the Dublin Municipal Corporation in relation to the devastated Sackville Street area are any criterion of the condition of affairs to be anticipated in a Home Rule Parliament, the last state of the "distressful country" is likely to be worse than the first. An influential deputation of Dublin's citizens has interviewed the Prime Minister and returned perfectly satisfied that they had succeeded in gaining from him a promise of all that they had hitherto contended for in the way of Government assistance towards the rehabilitation of their city. In the meantime, some of the owners of property in North Earl Street, being in a sufficiently sound financial position to be independent of the Government, have pressed on with plans for immediate rebuilding, *malgré* any scheme of town improvement, and the Paving Committee have recommended the sanctioning of the plans prepared. A typical Irish debate ensued, with plenty of personalities, contradictory statements, and insinuations, with the result that the recommendation of the Paving Committee was approved. We fancy the chance of a worthy improvement scheme for which the opportunity has occurred is infinitesimally small.

The Lincolnshire Naturalists' Union has printed for circulation among its members an interesting lecture on Romano-British remains at Saltersford, which Mr. Henry Preston, F.G.S., delivered at the annual meeting of the Union. These remains have been discovered in the course of excavations made from time to time on the site of the Grantham Waterworks, and they clearly indicate that a Roman ford town existed in the neighbourhood. Practically the whole of the finds are of a Roman or late Celtic type, the period represented dating from early in the second century to the end of the Roman occupation of Britain, extending over 300 years. Saltersford was evidently a ford of some importance, and had a large population. Remains have been uncovered of a building which was probably the residence of the Roman official in charge of the ford, and of the town which had sprung up near the crossing of the river. A feature has been the extensive find of coins. There are no fewer than 600 coins, more than 200 of which have been identified, covering a period dating from 69 to 423 A.D., and representing over 40 rulers and their wives. The iron objects unearthed form a remarkable collection. Beside a quantity of unnamed pieces there are 44 articles which have been named. There are also numerous interesting articles in bronze, which mostly take the form of objects for ornament or personal use, such as brooches, rings, armlets, &c., which show that the town was inhabited by families wherein woman played an important part. Among the most striking finds in this respect is a small hand mirror, which has been silvered or tinned over to give it a bright reflecting surface. A large collection of pottery has also been found, and also some glass. Nothing has been found to indicate any religious life at the station, but there is a gray Roman urn in which the ashes still remain from a cremated body.

Adverse comments have been made on the way in which the Government have ignored the national necessity for economy, by permitting the publication at the present time of the latest volume of the Historical Manuscripts Commission, which deals particularly with the records of the city of Exeter; but as it has appeared,

we may note the origin of some of the most important records as described in the introduction by Mr. J. H. Wylie, M.A., D.Litt., who prepared the text of the volume of 500 pages for the Commissioners. Dr. Wylie in his introductory remarks says:—

“In Tudor days the city of Exeter was fortunate in having as custodian of its records a learned and travelled man, who, besides taking an active part in the events of his own time, had a keen perception of the value of original documentary evidence as a guide to an accurate knowledge of the historic past. John Vowell, alias Hooker, as he usually calls himself, was born at Exeter about the year 1526, and on September 21, 1555, was appointed the first chamberlain of his native city. On May 20, 1568, he went to Ireland, at the request of Sir Peter Carew, ‘for the recovery of certain land appertant to the inheritance’ of his patron, and while there he sat in the Irish Parliament of that year as a representative of Athenry. In the following year he received official permission to print the Statutes and Acts of Parliaments of Ireland, but as this was to be ‘at his own charges,’ it is not surprising that the proposal seems to have come to nothing. After a three years’ stay he returned to England, and sat as one of the two burgesses who represented the city of Exeter in the Parliament that met at Westminster on April 2, 1571, and his diary of attendance at that Parliament, together with his claim for wages, is still preserved among the city archives. After this he was employed in a re-issue of ‘Holinshed’s Chronicle,’ to which he contributed the section on Ireland and the account of the ‘Commotion’ at Exeter in 1549, during which he had himself been present. In addition to his office of chamberlain he held at various times the offices of coroner of the city, bailiff of the Manor of Exiland, collector of the small Custom, and judge of the Admiralty in the county of Devon, in all of which capacities we have abundant evidence of his activity still preserved in the city records.”

The measures for the safe keeping of the records in which the city of Exeter is rich appear, however, to fall far short of their value, for Dr. Wylie tells us that the room in which the muniments are now kept consists of the upper storey of “the house in the back court behind the Guildhall,” the building of which was ordered on July 12, 1556, for “the imprysoning of such as shall be commended to the warde,” four cells of which were completed in the following year.

Discussing the question of the safe storage of the records, Dr. Wylie refers to the various recommendations for the erection of an efficient muniment-room, and goes on to say, “Six more years have elapsed since a report was presented, and the descriptions and apprehensions recorded in it are literally applicable to-day. The city is justly proud of its records, the intentions of the council are good, and are periodically recorded, but periods of alarm are succeeded by periods of security. Just prior to my visit in 1910 the city had been stirred by the occurrence of a most destructive fire in broad daylight, and the charred remains of the disaster formed a striking object-lesson to the crowds who daily passed the spot. Two months later the Council passed a resolution which would have provided a proper home for its records on a safer site, but nothing appears to have yet been done, and I feel bound here to record my conviction that this great collection, as at present housed, is in serious danger of destruction.”

The recent revelations respecting the condition and needs—physical and mental—of some of the British prisoners of war interned abroad, coupled with the recently imposed restrictions on the transmission, by private individuals, of any printed matter to enemy or neutral countries, makes it more important than ever that friends and correspondents of our interned men, when writing to them, should acquaint them with the existence of an Educational Book Scheme under which they can get their wants supplied. Under this scheme any such prisoner can obtain, free of charge and carriage

paid, good books of an educational character (not fiction or light literature) on almost any subject for reading or private study during his internment by communicating (either directly or through a correspondent) with Mr. A. T. Davies of the Board of Education, Whitehall, London, S.W. Prisoners are invited to state as precisely as possible on a form (which can be had gratis on application) what kind of books they desire. The evidence that has already reached this country shows that it is necessary to provide not merely physical, but also mental, sustenance for British prisoners during their confinement—and this the above Educational Book Scheme aims at doing. Offers of suitable books for the latter will be gladly received by Mr. Davies, but they should be accompanied by a submission of the list of books proposed to be contributed.

## ILLUSTRATIONS.

### BRITISH DOMINIONS HOUSE, FINCH LANE, LONDON, E.C.

THE British Dominions General Insurance Co., Ltd., have erected their new head offices, which they call “British Dominions House,” with elevations to No. 2 Royal Exchange Avenue and Nos. 19, 20, and 21 Finch Lane, E.C. The principal entrance faces the Avenue approach from the Royal Exchange, and there is a second entrance in Finch Lane, communicating with the former by a corridor, the staircase hall forming a junction between the two. The entrance vestibules, corridor and staircase hall have marble-panelled walls and marble-mosaic floors, the ceilings being treated in moulded plaster. Over the principal entrance door an oval light contains a picture of London in A.D. 1509 in stained glass set in a bronze frame. To the right, on entering the ground floor, is the underwriting room—of which we give an illustration—the walls panelled in Italian walnut, 9 ft. high, and above in modelled plaster. The remainder of this floor is occupied by the fire department, panelled in oak and with fittings of the same wood. The first floor is occupied by the reinsurance department. On the second floor is the handsome board room, here illustrated. Both panelling and furniture are of old English oak, and the plaster decorative frieze and ceiling are waxed and toned to harmonise with it. In the windows are shields containing the arms of the principal cities in which the company has branch offices, such as Birmingham, Cardiff, Edinburgh, Glasgow, Liverpool, Manchester, &c. The secretaries’ room, the indemnity department, and the directors’ cloakroom occupy the remainder of this floor. On the third floor are the motor and accident departments, with fittings of oak. The top floor contains a large suite of lavatories for the clerks and a smaller one for the managers. The resident caretaker’s rooms are also on this floor. In the basement are additional offices and a number of strong rooms. A sub-basement contains heating chamber, coal and other storage. The artificial lighting is by the semi-indirect system, with 200 to 300 candle-power lamps. A two-point Waygood vacuum-cleaning apparatus serves each floor.

The building is on the steel-frame principle, with ferro-concrete floors and roof, the staircase being of ferro concrete in one structure from top to bottom. Externally the building is faced with Doulton’s “Carrara” ware, the use of which was accepted as a concession by certain owners of rights to lights. The fittings and furniture were specially made to the designs of the architect of the building, Mr. Arthur H. Moore, A.R.I.B.A.

Messrs. H. H. Martyn & Co., Ltd., of Cheltenham, carried out a considerable amount of decorative work, including the walnut panelling, plaster work, and wrought-iron and bronze work. The asphaltting, &c., was by Thomas Faldo & Co., Ltd., Windsor House, Kingsway, W.C. The stained glass is by Mr. Horace Wilkinson. The general contractors were Messrs. Patman & Fotheringham, Ltd., of Islington and Theobald’s Road.



## SOME RARE FIRE-MARKS.

THE commencement of the fire-mark cult, some thirty years ago or more, has now developed into a widely spread hobby, fresh collectors springing up yearly in the United Kingdom, and also in our Colonies, U.S.A., and in many continental countries.



1. **ALBION FIRE OFFICE.**—Dates uncertain. One or two companies of this name. Style of plate probably early eighteenth century. Somewhat similar iron styles in Hercules first and Kent Economic. (Marquess of Granby's collection.) An Albion Fire was absorbed by London and Lancashire in 1907. A leaden Albion was recently removed from a house in East Hill, Wandsworth. Another Albion, probably the plate referred to, was extant in 1805 till passing over to Fire Company in 1827. (King collection.)

The general public view with a sort of amusing bewilderment the signs exhibited at Lancaster House Museum and the Guildhall in London, or those shown by many provincial institutes.

Yet these old tablets, with their quaint sooty appearance, saved in past generations both life and property.

It is pardonable curiosity for the uninitiated to inquire as to why a householder or property owner in past generations could not be insured unless a piece of lead bearing



2. **BRITISH FIRE OFFICE.**—Established 1799, became British and Irish United, 1804, passing to Sun in 1843. Issued some four different leaden variants and some six copper ones, all with a lion depicted thereon. This is one of the largest and handsomest premier leaden signs. Another early company of same name lasted some years. (Mountain collection.)

a stamped number was affixed outside his house. The answer is to be found in the fact that an exceedingly uncharitable custom prevailed amongst these few pioneer fire offices in the primary period of fire insurance, which operated as follows. Assuming an alarm of "fire" was raised, some of the watermen firemen (each early office possessed its own firemen) belonging to, we will say, "A" office arrived on the scene. Assuming furthermore that the mark on the wall bore "B" office's device, the "A" people departed. The burning building not being assured with "A" it was no concern of "A's" firemen regarding its fate!



3. **BRITISH COMMERCIAL.**—Established 1820. Lasted only a year or so. Two or more variants. One of lead and this of copper. Both extremely scarce, the lead being slightly more so. (Williams' collection.)



4. **BRITISH AND IRISH UNITED.**—See No. 2 plate, British Fire Office. Some two variants known. This illustration differs from No. 5; the variations are in the head and tuft of tail, and being more apparent in the actual objects than in pictorial effect. Copper. (Kelly collection.)



5. **BRITISH AND IRISH UNITED.**—The other variant alluded to Copper. (Kelly collection.)

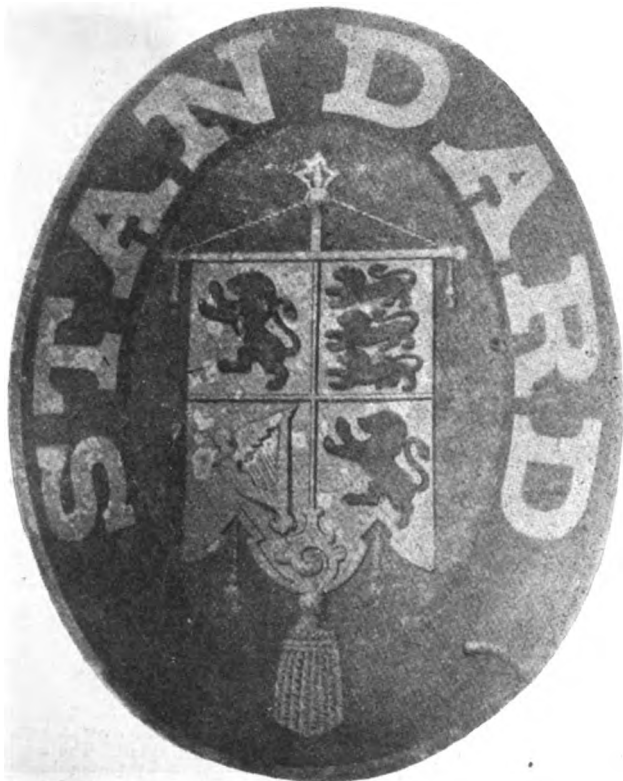
It was the custom furthermore for a reward to be given to the first person arriving to announce a fire. The mark often proved invaluable for that which we should, in these days, term first-aid. It has its uses too as an



5A. OLD BRISTOL FIRE OFFICE.—Very rare, dates uncertain. Lead. (Bashall-Dawson collection.)

advertisement. In short the little emblem was an important metal object, possessing in addition to its utilitarian side an artistic merit, being often beautifully fashioned by some old leadsmith.

We come now to the vexed question—Which fire office issued the first fire-mark? There would appear to be at



6. STANDARD.—Established 1874. Ceased shortly afterwards. An extremely scarce variant. Modern. Rare. (Bashall-Dawson collection.)

first some seven offices. These were interwoven often with each other and existed between 1680 and 1709. Two of these still flourish, viz. the "Hand in Hand," who claim 1696, now controlled by the Commercial Union, and the powerful "Sun," who record their establishment as 1709. These are the dates of their *direct* establishment, all early fire office history being very complicated and open to

question. In the "Early Days of the Sun Fire Office," by Edward Baumer, the earliest mark recorded as in possession of the company, a great treasure to them, is



7. COMMERCIAL UNION FIRE.—Established 1861. Flourishing to-day. This Company has absorbed the oldest existing English fire office, viz., the Hand-in-Hand, which was founded in 1696. Several variants, this being a very rare one. Copper. (Tufnell collection.)



8. ECONOMIC KENT FIRE OFFICE.—Established 1824. No further particulars obtainable. Iron. Extremely rare. (Tufnell collection.)



9. FARMERS' AND GENERAL FIRE.—Established in 1840, and four years later changed its name to Royal Farmer, going to Alliance in 1888. This variant extremely rare. Copper. (Tufnell collection.)

numbered 838. The description underneath the picture of this sign reads: "Mark belonging to policy No. 838, dated 13th January, 1711, insuring a house in Church Row, Fulham, belonging to William Skelton."

The present writer does not know of any earlier mark in existence, but fire-mark matters often yield surprises notwithstanding the experience of years of research.

Reverting to "Hand in Hand" and "Sun" matters, these signs are to be often seen in friendly rivalry on

early Georgian houses. A year ago or so there were several in Whitehall and its environs—two are still to be



10. FARMERS'.—This variant is far more plentiful. (Mackie collection.)



11. HERTFORDSHIRE, CAMBRIDGESHIRE AND COUNTRY, erroneously termed County.—Established 1824, passing to Phoenix, 1831. One copper variant or more. Both rare. This the more so. Copper. (Tuftnell collection.)



12. IMPERIAL FIRE OFFICE.—Established 1803. Transferred to Alliance, 1902. Issued several variants. In Fire Catalogue published 1903 a leaden mark is stated, but Mr. Collins had no recollection of same. Copper (Kelly collection.)

noted in conjunction with a portcullis on a fine old mansion in Buckingham Gate.

Often different terms applying to the mark arouse some mild controversy. A powerful section of collectors term a mark that which bears the number of policy thereon. Another will say, "If it has a number it is a fire-plate." The writer holds the opinion shared by many that a house having any fire-tablet affixed is "marked." Take, for instance, the treatises written by Mr. Hiles in the magazine issued by the Royal Exchange Assurance Corporation, circulating only amongst the Company's officials. In one of these he pointed out that



13. IMPERIAL.—Another variant. Copper. (Kelly collection.)



14. KING.—A modern 1901 company which took over a very old mutual affair, the North-Eastern of Darlington. The company transferred its fire insurance to Commercial Union last year. It issued a few well-executed specimens of above. Enamelled iron. Collectors cannot obtain now. (Mrs. L. C. Prideaux's collection.)

the "mark" placed generally in Regent Street circa 1820, &c., bearing no policy number at all, is described as a mark, and it may be taken for granted most fire offices discontinued numbered marks about 1800. Some ultra-conservative companies continued the custom in one or two rare cases.

(To be concluded.)

## CHESHIRE CHURCHES.\*

By F. E. HOWARD.

*(Concluded from page 36.)*

THE planning of the screens with which these churches were divided deserves attention. In Cheshire the design of the rood screen was usually distinct from that of the parclose or aisle screens. Even in churches of pure West-country plan they seldom appear to have run continuously from side to side of the church. For instance, at Plemonstall the screen across the north aisle is some feet west of the rood screen, with which it is connected by a return screen. The head of the latter runs westward to the first pier of the arcade to stiffen the structure. At Astbury, while the rood screen and aisle screens are of the same date and are in the same straight line, they are entirely different in type, the rood screen being lofty and of arched construction, while the aisle screens are low and of rectangular framing. In the churches with chancel arches the rood screen stood beneath the arch, while a parclose was constructed at the end of each aisle. At Barthomley these screens are fitted between the arcades in the usual manner, but at Malpas they are quite independent and encroach upon the nave. It may be noted that at Gresford in the next county the aisle screens are set one bay east instead of west of the rood screen, so that the quire projects into the nave. There is an almost entire absence of rood-loft stairs, even in the largest of Cheshire churches, but one has recently been uncovered at Great Budworth.

Leaving the question of planning and general structure, we turn to the consideration of peculiarities of detail. The buttresses of the Cheshire churches are very characteristic. They project boldly and very often terminate in a crocketed ogee or gable, from which a weathered slope rises. The earliest and richest examples of this type are the pinnacled buttresses of the quire of Nantwich. Those of the nave are simple, and the slope and gable motive is less obscured. The buttresses of Acton Church are similar, but are later and of more refined proportions. Those of Malpas are perhaps the most beautiful and effective of all. This gabled type of buttress degenerated in the latter half of the fifteenth century. The best late examples are of an altogether different and less individual type, with finely moulded slopes, as at Bebbington. In all these churches you will observe the fine base mouldings and the string-course beneath the window-sills, so characteristic of Cheshire.

Several curious local types of tracery may be noticed. First, there is the window with intersecting tracery—as at Frodsham, a three-light example, and at Witton, one of five lights with a panel, the full width of the light, worked into the tracery. Another typical design is distinguished by a horizontal transom above the arches of the main lights, as at Barthomley, where there are no super mullions, and at Malpas, where there are two batement lights above each main light. Yet another type is rather rigidly rectangular, of which the seven-light window of Frodsham chancel aisle, with its curiously cusped batements, is a good example. It will be observed that in the majority of these windows the arch is four-centred, but at Malpas it is segmental. Cusping in sandstone is always inadvisable, and the later builders entirely discarded it. The end windows of Weaverham are instances. The windows of Bebbington are of such exquisite proportions that the loss of the cusping is scarcely noticed. In these windows the transom is older work restored. The window at Frodsham, with its straight-sided arch, is an example of very late date. Similar work is common in clerestories, as at Witton and Budworth.

In the arcades the favourite form of arch is the pointed segmental. This is quite a Cheshire peculiarity. The arch mouldings are chiefly composed of convex members, such as ovolos, waves, ronds, and ogees. The first order is generally large, the second exceptionally small. Most

of the peculiarities are exemplified in the arcade of Astbury, but the absence of capitals is not a Cheshire feature. The piers are very often octagonal, but various moulded piers are general. Shafts in groups of three, as in this example, are not uncommon. In the fourteenth century arcade of Great Budworth the pointed segmental arch is less marked. The usual convex mouldings of the arch and the rather indefinite cap mouldings will be noticed as Cheshire peculiarities. The little arcade of Thornton-le-Moors illustrates a large group of late arcades in the smaller parish churches with octagonal piers and four-centred arches. Most of these local peculiarities are not found in work of an earlier date than the fourteenth century. The Norman arcades of Bebbington and Frodsham, and the thirteenth-century arcades of Eastham do not differ from work in other parts of the county.

The doorways of Cheshire are rarely elaborate; those of the fourteenth century are usually in two orders, with large convex mouldings; those of the fifteenth century in one order with four centred arches. The usual fifteenth-century label and spandrels are not often employed. The doorway of the porch of Great Budworth is typical—in fact the whole design of the porch, with its horizontal battlemented parapet, small diagonal buttresses, and deep basement moulding, is proper Cheshire work. The porch of Over is similar, but an upper stage which oversails the lower has been added in later times. The two-storeyed porch of Malpas has additional decoration in the form of a pair of niches and pinnacles to its battlement, but is otherwise similar. Three stages appear in the porches of Astbury and Macclesfield, but this is very exceptional.

The roofs of Cheshire churches deserve to be famous. The gabled examples are usually of the hammer-beam type, reduced to the simplest possible terms, as at Plemonstall, which is probably mediæval. Windbraces are very prominent in these roofs. Tarvin has a fine hammerbeam roof of the seventeenth century. It seems probable, however, that before the fifteenth century the usual form of roof was the single-framed, arch braced roof, of which a good instance of the early fourteenth century may be seen in the south aisle of Tarvin. But the finest of the Cheshire roofs are the flat cambered beam roofs, which came into use in the mid-fifteenth century. The nave roof of St. Mary's, Chester, is a lovely example, with the typical flagree bosses of the district, from which delicate leaves in groups of three spring to cover the mitres. In this roof, and in that of the aisle of Astbury (which is distinguished by tracery running in the moulding), all the beams and purlins are of the same size. In the nave of Astbury the main squares are subdivided by lesser ribs, while at Malpas the panels are again subdivided transversely. At Budworth each of the panels is divided by small ribs into four. This roof has been altered in the seventeenth century, like many other Cheshire roofs, when classic trusses were inserted instead of the typical flat arched braces. Finally at Witton each of the panels is divided by diagonal ribs. In all these roofs the quantity and beauty and delicacy of the carving, whether in the bosses, the trails of tracery decorating the beams, or the traceried sides of the beams, is phenomenal. Monograms of the Holy Name, or the letters of the name of Our Lady, are very commonly found in the bosses. These roofs, though not so clever and daring as those of East Anglia, are very sound constructionally, and their effect is very restful and satisfactory.

The towers of Cheshire are particularly charming, and some groups possess striking local peculiarities. The early towers, such as Bunbury, are very large in area and severely plain. At an early date diagonal buttresses are employed in preference to buttresses in pairs, as at Bebbington in the beginning of the fourteenth century, Malpas in the middle, and Frodsham at the end of that century. In a much smaller example of the same date at Heswell, the germ of a beautiful group of Cheshire towers, this may be noticed; the belfry is of later date and the turret is exceptional. At Grappenhall—of the

\* A Paper read before the Royal Archaeological Institute.



early thirteenth century—the buttresses in many stages, and the battlemented parapet with equal pinnacles at the angles and middle of the sides, mark a further stage in the evolution of the type, but the windows of two lights are exceptional. At Tilston the windows are of three lights under a four-centred head, and the battlement is new, but the outline is typical of Cheshire. At Handley the type has fully evolved, with its pointed-arched belfry windows with peculiar tracery, the central light running right up to the main arch, and its battlement with eight equal pinnacles, or, rather, pinnacle bases. Tattenhall is in a similar stage of evolution. Here the strings, by exception, run round the buttresses; generally they are quite independent. At Weaverham we find the type in its perfection, with beautifully designed buttresses and a very satisfactory division into stages. The band of tracery beneath the battlement is often found in Cheshire towers. It also occurs at Over, a taller and equally fine example of the typical Cheshire tower. Shotwick—a rather plainer and late example—represents several towers of the group still remaining in the Wirral peninsula, as at Wallasey and Bidston. Besides the single-windowed tower, there is the tower with coupled two-light windows. Budworth is a fine instance. In this type also the multiplicity of offsets and the six equal pinnacles, or pinnacle bases, and the absolute independence of buttress stages and tower stages is retained. Witton, evidently a work of the same builder, is a later and even more finely proportioned tower. In some examples of this group the belfry windows are grouped beneath an ogee hood-mould, as at Wybunbury, an exceptional tower with a very curious and unusual buttress treatment. The same corner-clamping buttress occurs in the magnificent tower of Tarvin, perhaps the finest in the county. The tower of Gawsworth is exceptionally lofty for Cheshire, but its parapet with eight equal pinnacles, and the band of tracery below, and its twin two-light windows, are of the local type. Mobberley illustrates a very late stage in the evolution of the twin-windowed towers, and it is stated to be of post-Reformation date. In spite of its simplicity it is a very fine tower. Alderley, which is very similar, and is assigned to the same period, is of excellent outline, and its buttresses have the typical gabled offsets of the district.

Though Cheshire cannot be assigned to first-class rank as an ecclesiastical district, it stands very high in the second-class, and I am at a loss to understand why its fine churches have not been systematically studied hitherto. A wealth of beautiful, if sometimes eccentric, mediæval building yet remains in the county, in spite of wholesale modern rebuilding and destruction. Perhaps the most characteristic example of Cheshire church building now in existence is Witton.

### THE OPEN SPACES OF LONDON—PAST, PRESENT, AND FUTURE.\*

By LAWRENCE CHUBB.

(Concluded from page 55.)

LONDON squares are only open spaces in the sense that they are unbuilt upon. The efforts of the L.C.C. to secure their preservation have received the warmest sympathy of all supporters of the open space movement, for the squares are essential to the amenity of the Metropolis of which they form a distinctive feature. The new use to which many of them are being put as resting-places for the wounded may, it is hoped, eventually give place to the permanent preservation of these lungs.

Amongst others who have been in the forefront of the open spaces movement are the late Miss Octavia Hill and Sir Robert Hunter. It was an inspiration to work under Miss Octavia Hill's direction. Her warm

sympathy, wise judgment, deep earnestness, and practical common sense were outstanding qualities in a character which did much to arouse interest in the possibility of uplifting the poor and brightening their lot. It is pleasant to feel that the memory of Miss Hill will be kept alive by the preservation of Hydon's Ball, one of the beautiful Surrey hills she loved so well.

Of Sir Robert Hunter's services to the cause it would be impossible to speak too highly. All the early commons suits were fought under his direction as solicitor to the Commons Preservation Society. Without his unrivalled knowledge of the law of commons the movement would have been gravely handicapped, and the many victories won are striking testimony to his ability.

Sir Robert continued until his death a vice-president of the Society and the chairman of its Kent and Surrey Committee, and he was also chairman of the latest of the open space societies, the National Trust. He, moreover, was keenly interested in the work of the London Society.

I cannot pretend to have adumbrated, in the time at my disposal, to one title of the open spaces which have been saved. I have only attempted to illustrate the work. It now falls to my lot to invite you, in the few moments that remain, to consider the future. Much has been already done to provide breathing spaces for the teeming population of the Metropolis, but no one will assert that the work should cease. London is growing in every direction. Villages are merging into towns, towns into cities, and cities into London. We have seen how hard has been the struggle to acquire open spaces in the past. That has been the natural consequence of our almost national habit of putting off till to-morrow what could and should be done to-day. Our open spaces have been saved in haphazard fashion, not as a result of any well-conceived scheme.

I venture to suggest that what is required is an intelligent anticipation of future needs in order that desirable open spaces should be acquired when the price of land is relatively low. Only 150 years ago St. Pancras was a country site. If only our forefathers had possessed imagination and foresight to stimulate the preservation of a belt of land there what a boon their action would have proved to subsequent generations! And what St. Pancras was in 1750 the environs of London are to-day. Shall we not be warned by the experience of the past and secure substantial reservations outside the present building line?

The coming of the motor bus and car and the promise of wide and important new arteries bring within the reach of all neighbourhoods which until lately were far in the country.

A beginning has been made in this direction by the National Trust, which is gradually acquiring by purchase or gift hilltops in Kent and downs and commons in Surrey. Hindhead has been saved; Colley Hill, Reigate, has been purchased; Box Hill has been given to the nation through the Trust by the splendid generosity of the late Mr. Salomons. Perhaps it is not too soon to suggest the possibility of local schemes for saving similar scenes of natural beauty as memorials of our fallen heroes.

Let us, then, encourage the acquisition of open spaces in the outer ring of London. Nearer at hand much remains to be accomplished. I look forward to the day when London will have a definite park system, with its broad and green ways leading to imposing parks. In the meantime I should like to see saved the banks of every stream within reach. A beginning has been made in the case of the Wandle, where several charming sites have been purchased, but such streams as the Lee, the Brent, the Colne, and the Mole all require attention. Is it too much to hope that our overworked legislators may see their way to formulate and carry out an equitable measure to prevent further building within fifty yards of such streams? We should then be saved the scandal of seeing rows of sordid and gardenless workmen's cottages dumped on marshy banks to the very water's edge, as has been done in the Earlsfield district of the Wandle.

\* A lantern lecture delivered before the London Society in the Hall of the Royal Society of Arts, Adelphi, W.C.



FAUQUISSART.

Another open space could be provided by the fulfilment of the dream of the London Society, which visualises a fine embankment garden along the southern side of the Thames.

We need, too, in addition to large open spaces, further afield, bold and useful pleasure grounds in the south-east of London. The north-east has its Epping Forest; the south-west its Wimbledon Common and Richmond Park; the west its Hyde Park. We have nothing to compare with these in the south.

Shooters Hill, Woolwich, with its glorious views and magnificent woods, should be saved from the builder; a big open space should be provided between Bexley and London; and beyond Croydon, where the land is still of little more than agricultural value, Addington Hills could be largely extended with advantage. Such spaces should be approached by broad park ways.

You will find these proposals incorporated in the suggestive map upon which so much care and attention are being bestowed by the London Society.

Large reservations of this kind will not remove the necessity of providing open spaces in every growing town around London. I look to the Town Planning Act to assist in the preservation of such sites. When wisely used it enables local authorities to bargain with a landowner for the dedication of playgrounds and parks, for if he manifests a disposition to meet the public desires in one direction, the authority can grant him valuable concessions with reference to the nature and width of roads and building frontages upon his property.

It will thus be seen that while much has been accomplished, still more remains to be done. The need of open spaces is a natural penalty of London's greatness. To supply that need, as London stretches out over the country-side, will require more and more patience and courage. But those who labour in the work will be amply repaid by witnessing the unbounded delight afforded to young and old by the privilege of access to grassy fields and flower-decked pleasure grounds, and by the knowledge that it has been their privilege to assist in promoting the health, comfort, and well-being of their fellow-citizens.

PROFESSOR SELWYN IMAGE is to be paid a fee of £75 for a course of lectures on the History of Artistic Craftsmanship, to be delivered at the L.C.C. Central School of Arts and Crafts, Southampton Row, W.C., during the session 1916-17. The course will trace the growth of craftsmanship, and demonstrate the effect of the accumulation of craftsmanship on industry, with special reference to the trades with which the school is particularly concerned.

### FAUQUISSART.

FAUQUISSART—a small village actually in the firing-line—stood a very few hundred yards behind the trenches which it was the Kensingtons' duty to hold against the assaults of the enemy. The latter part of 1914, memorable in North France for the extreme severity of the weather, saw the Kensingtons billeted behind the firing-line at Lavantie, from which place they used to march every three nights to occupy the trenches and relieve those on duty "up yonder." At the end of this journey, and at the junction of the road and long communication trench leading to the fire trenches, stood Fauquissart. The communication trench started a little ahead of the small presbytery shown in the sketch. The party are about to enter that long, foul, utterly abominable ditch which led to where the Kensington boys helped to keep the never-ending vigil, the endless watch of the Briton upon a powerful and relentless enemy. The cost in suffering and sickness which that long and patient watch entailed can only be justly appreciated by those who had to carry on whilst their comrades fell one by one, day after day, victims to a sniper's bullet or the various maladies inseparable from an immobile fighting-line in such a climate and conditions. That was the time before the urgently needed drafts could be obtained, when a man cursed, joked, and suffered doing the work of three or four to make and keep the water-logged ditches tenable. It was a question of the Expeditionary Force sticking it against the Huns opposite until the new armies could be made ready to prove themselves, and the Briton stand foot to foot with his enemy equally matched at last for the bloody fight which we all knew was coming.

In the memory of that period of endurance the village of Fauquissart is a prominent feature. Before we moved to a different sector the place was destroyed by German gunfire. Sinister, treacherous, a mixture of the pathetic and the unspeakably gruesome, with its unburied dead and wrecked homes, its bullet-swept streets, it takes its place with many hundreds of hamlets in other parts of the battle line. A walk along its main road with a ration party or burial party for some poor Kensington boy will always live in the memory of those who, through a cruel winter, under the vilest conditions, halved by death and disease, held the enemy back from those near and dear to them in the land of their birth. Held on and waited for the germ of the present great and glorious Army to mature, and then joined with them in many a doughty blow at those iron lines they faced so long. Their watchword is that of the British Army in the field—"Carry on."

**OBLIGATORY TOWN PLANNING.\****(Concluded from page 43.)***(1) THE CASE.**

By HENRY R. ALDRIDGE, Secretary, National Housing and Town Planning Council.

**(2) PROVISIONS WHICH SHOULD BE MADE OBLIGATORY.**

By COUNCILLOR HAROLD SHAWCROSS, J.P., Chairman, National Housing and Town Planning Council.

Not much harm would be done if a road that was on the map was found not to be needed, as provisions can be inserted for altering the position and direction of the road if it is found by general agreement to be unnecessary. If necessary roads are not placed on the map, building may go on where the road should be, and the chance of making the road in the most suitable direction thus lost for ever.

Also if a local authority carefully fixes the lines of new roads for through traffic which will be needed, then the parts of the districts between such roads might well be left to development. (This would save much of the elaborate nature of the clauses in the town planning schemes already sanctioned to control the widths of roads according to their length, provisions which often result in very undesirable planning.)

Moreover should sufficient roads not be shown for the development of a district existing roads might be completely built up with no cross roads at all. A local authority should have the power to require cross roads where needed at reasonable distances apart, say at least one-eighth of a mile.

It will be found also that in many cases the fixing of the directions of roads is very necessary so that owners can get access to particular areas of land, and this will often cause the landowner to be willing to meet the local authority liberally in regard to agreements. Also in the matter of old footpaths, accommodation roads with rights of way over them, &c., a plan showing new roads in place of the old can often give great advantages to landowners.

Therefore it would appear to be advisable to show as many roads as are likely to be required for through traffic. If the scheme is not well thought out as regards roads, difficulties may be met with later as there may be different owners to the present ones. If land changes hands and gets split up the trouble of arranging the road directions will become much greater. A clause can be inserted in a scheme to enable the direction of a road to be modified or altered with the consent of the Local Government Board, and this should be a sufficient safeguard in case mistakes are made in the direction of a road on the map.

**3. Limitation of Buildings to the Acre.**—This is, of course, the most important provision of a town planning scheme from the point of view of the health and amenity of the people. The need for limiting the number of buildings is practically the need for preventing too many people being crowded together, and in considering the number of buildings to the acre to be allowed, it is dwelling houses that are in one's mind when making the restriction as to the number. In urban schemes for industrial districts, though the number of houses to the acre must be drastically limited, provision must be made that houses both with and without gardens can be built if necessary. In some districts gardening is a doubtful joy and often a discouragement to the individual attempting it. We must therefore so arrange our planning schemes that the provisions are as elastic as possible. The tendency will be that in fixing the number to be allowed, local authorities will be inclined to fix the maximum

number as the one to be in force over all their district. This will be a pity, and local authorities should be strongly urged, especially in more populous districts, to reserve certain areas with fewer houses to the acre and for residential purposes so that their districts shall not develop with the same uniformity as is the case now.

It is suggested that for urban districts where there is a proper water supply and sewage system the greatest number of buildings to be allowed per acre should be twelve. (It would be necessary to exempt areas where streets are already being laid out and development is taking place. In such cases twenty might be allowed.)

**4. Proportion of Sites of Dwelling Houses to be Built Upon.**—Perhaps this is equally important with the question of limiting the number of buildings to the acre, as unless each individual dwelling house has more site area allotted to it in the future than is now the case there may be as bad development as at present through a number of houses being crowded together in one part of an area taken as a land unit, whilst the rest of the unit is open space or has very few houses on it.

Not only are fewer houses wanted to the acre, but also more space about each house. In schemes so far approved only one-fourth to one-fifth of the site area of a dwelling house is allowed to be covered with buildings. How different this is from the ordinary development under the usual by-laws can be seen when it is remembered that at present the site of the usual workman's house has hardly more than one-fifth of its area unbuilt upon.

However desirable it may be in many districts to insist on so much of the site being unbuilt upon, as in schemes already approved, it would be a mistake to adopt such a provision in obligatory schemes for industrial areas. The contour of the land for instance in South Lancashire, with its hills and narrow valleys, would make such provisions impracticable. It should be sufficient in such districts if one-half the site area were allowed to be built upon, provided that provisions such as the following were also in force:—

In no case shall more than eight houses be built in one continuous row.

In no case shall the site area of dwelling house with its proportion of roads or open space (either public or reserved by the scheme as not to be built upon) occupy less than one-twentieth of an acre, provided that this condition will be fulfilled if eight houses in a row occupy eight-twentieths of an acre, and for a smaller number in a row a similar proportion is fixed.

Provision should be made on the lines of the Ruislip scheme, for dwelling houses which are occupied by more than one family, having more open space about them.

**5. Space about Factories, Workshops and Buildings of Exceptional Height.**—The provisions for regulating this should be of a general description, as no attempt would be made to insist on local authorities reserving areas for certain purposes in obligatory planning. (This would follow when detailed plans became necessary through development taking place.)

The following are suggested as reasonable restrictions upon the building of factories, &c.

Every factory should have on its two sides of greatest length an open space equal at least to the height of such factory. (When the buildings are of irregular shape the local authorities shall have power to decide how this requirement shall be met.)

No dwelling house shall be built so that any part thereof is within a distance of such factory equal to the height of the factory. Reservation to be made in case of one dwelling house for each factory for watchman or other person which may be placed nearer at the discretion of the local authority.

If buildings are declared to be of warehouse-class (for storage of goods and with few people employed) the number of persons to be employed therein should be limited by the scheme and these could be built then according to the ordinary by-laws.

\* A Paper prepared for the forty-third Annual General Meeting and Conference of the Institution of Municipal and County Engineers at Blackpool on June 29 and 30 and July 1.

In places where the configuration of the land makes it impossible to erect chimneys of the ordinary height as allowed by by-laws, without creating a nuisance to neighbourhood (either to existing houses or to places which might become residential), then the local authority shall have power to require chimneys of such a height as will prevent such nuisance.

Shops and public buildings to have a space equal to their height on each side fronting to a main street, and on two sides at least if the shop is a residential one.

**6. Provisions for Varying the Widths of Roads.**—This will be a very necessary matter to be dealt with in obligatory planning, and will also not be a matter for compensation. It is necessary, because the method of building by spreading the houses of the people more upon the land cannot be obtained (except at a prohibitive amount in rent) unless the cost of the ordinary by-law street works is mitigated. Also it is necessary that some encouragement should be given to the landowner who is willing in letting his land to see fewer houses built upon it and more open spaces provided.

In schemes so far passed there are provisions made for allowing a narrower width of road where such road will not in the opinion of the local authority be likely to be used for through traffic.

To allow this the following (or similar) provisions have been made in these schemes:—

If a street is less than 350 feet in length the width is allowed to be 20 feet.

If a street is less than 700 feet in length the width is allowed to be 24 feet.

If a street is less than 1,500 feet in length the width is allowed to be 30 feet.

In obligatory planning some such provision might be inserted in schemes, but it is suggested that it would be a mistake to bind the authority too hard and fast a line in such matters.

For instance, if in a particular case a street were required to be 360 feet long, it would be absurd (if there were no objections for other reasons) to insist on its being more than 20 feet wide.

Also in some cases it may be quite sufficient to make streets less than 20 feet wide. In the garden city now building at Crayford they are allowing what are called footpath streets which are only 10 feet wide, and which serve only a few houses.

Therefore it is suggested that the local authority having safeguarded itself by showing on the map the lines of new streets which will serve for through traffic, should leave the question of narrower streets as open as possible by giving these concessions in the width of streets in return for a plan from a landowner or owners for the laying out of a district on lines which they can approve.

With these concessions in streets it will be necessary to consider the varying of the number of houses to the acre on different parts of an area.

This has hitherto been done by means of what is called a "land unit," which it will be well to have briefly described.

Though over certain areas of land in a town planning scheme the number of buildings per acre is fixed, there is required further some provision by which the space about each house may be varied according as the houses built are small or large, or are required with gardens of different sizes or with none at all. This has been obtained so far by means of the "land unit," which in the Ruislip scheme and some others, provides for squares being drawn on the map within which squares the number of houses may be varied provided that over the whole area of the unit there shall not be more than the number of houses allowed by the scheme.

When plans are deposited for building on any land unit the local authority can demand a plan for all the land within such unit provided it belongs to the same owner (if all the land does not belong to the same owner then for such part of the unit as belongs to the landowner presenting the building plan).

These provisions, and the ones for varying the width of roads, would be much too cumbersome for obligatory planning, and it is submitted that the following would be a better method to adopt as leaving the local authority a free hand in dealing with the different problems that will be met with in various parts of the country.

It would seem that if planning is made obligatory the simplest way of regulating the building of houses is to make the giving of concessions in the width of road and the proportion of the curtilage of a house to be covered by buildings, dependent on plans being deposited showing the lay-out of estates or such portions of the same as are judged by the local authority to be of a desirable area for a "land unit." The area would be considered in relation to the contour of the land, the position of existing roads, or roads shown on the map by the town planning scheme, the unsuitability of any part of the land for building upon, any land set aside as private or public open space, &c.

The effect of this would be that if a person presented a plan for building on a plot of land for which no plan of development had been approved, then the number of buildings on the plot would have to be in proportion to the number per acre allowed by the scheme for the district of which the building plot in question formed a part. For example, if a man presented a plan for ten dwelling houses on half an acre of land whilst the number allowed for the area was only twelve per acre, he would be told that only six houses could be allowed, and that the curtilage clause in the scheme must be adhered to. And if he wished to make a road to them of a narrower width than insisted on by the by-laws, that also would not be allowed.

If such a provision were inserted in a scheme it would be to the advantage of all interested in land—i.e., the landowner, speculative builder, or the small builder or property owner—to get plans passed for the development of land showing all concessions possible by the scheme to cheapen the cost of development.

**(7) Open Spaces.**—At first sight it would appear unnecessary to include this in obligatory matters in planning schemes. The importance of the question, however, is so extreme that it is felt that this is a matter that local authorities must consider, however little open spaces may be needed in their districts.

It is suggested that the Local Government Board before passing a scheme should require the local authority to report as to what open spaces there were in the district under its charge, what they had done to get land reserved for future requirements, and what land unsuitable for building upon had been scheduled as land upon which no dwelling houses should be built.

In almost every district in the country there are certain places which would seem naturally ones that ought not to be built upon. Such will be the banks of streams and rivers, low marshy ground difficult to be drained, parts of the district which owing to the contour of the land it is impossible to bring into a sewerage scheme, the sides of hills, &c.: authorities ought to secure such spaces as land not to be built upon. If possible, agreements should be made to buy any land that it seems likely may be wanted by the authority at some future time if the owners cannot be induced to give it. It might be arranged that such options should not be exercised till the development of a district warranted the purchase.

It will in most cases pay a landowner well to give land for this purpose, as by it the surrounding land is increased in value. Indeed, if land is wanted for recreation grounds or similar purposes, it would pay the landowner in most cases to give something with it, as he would very quickly develop all the land around.

There need be no compensation for open spaces, as these would be nearly always matters of agreement.

**8. Waiving of Unnecessary Regulations in Building By-Laws.**—There are many regulations in building by-laws which will not be needed in the open development in



town planning schemes, and a provision should be inserted in schemes so that these shall not apply.

These regulations vary in different districts, but the following may be cited as being unnecessary:—

(1) Party walls built through roof. (2) Corbels under eaves. (3) Secondary access to house insisted on by means of back passage. (4) Building of walls to divide the back-yards of houses. (5) Flagging of back-yards. (6) Excessive height of rooms.

The cost of building could be lessened by waiving the above provisions, and doubtless engineers and surveyors can suggest others where saving can be effected.

It is sometimes suggested that more stringent by-laws should be obtained under town planning schemes. This should be attempted very cautiously as it does not seem right to get provisions adopted for a healthier method of development that are not contained in the local authority's by-laws. The proper procedure is to get the by-laws strengthened.

There would, of course, be no question of compensation about these matters.

9. *Provisions to Secure Amenities and to Prevent Nuisances.*—It should be made obligatory upon all local authorities to insert such provisions in their planning schemes as shall give power to the local authority to deal with such matters as the securing of amenities and the prevention of nuisances. Such provisions will be found in all schemes yet sanctioned, including the Ruislip one.

## 2. OBLIGATORY PLANNING IN RURAL AREAS.

It would seem that, so far as defining what provisions should be made obligatory in all planning schemes, it is equally necessary that the same matters should be dealt with in rural as in urban schemes.

The difference will be in the details of the scheme, especially in the number of houses to be allowed to the acre—which would be very much fewer in rural than in urban areas.

The question of sewerage and water supply will need to be closely considered in rural areas, for where there is no sewage system, and each house has to deal with its own sewage, ample space should be allowed round the house.

When, in addition, there is no water supply, but water is obtained from wells sunk in the ground for each house, the number of houses would require to be still further reduced to guard against the risk of contamination. If legislation is passed, it will probably be necessary to make provision by which rural areas can alter their schemes when sewage systems are installed and public water supplies provided.

It must not, however, be forgotten that many rural districts have parts that are urban in character. What would appear to be wanted are clauses in a scheme by which provisions suitable to urban development can be applied to any part of a rural area by a resolution of the local authority, subject to the consent of landowners and others interested. These conditions would be necessary if, owing to the opening up of collieries, mineral works, or the starting of industrial factories or garden cities like Letchworth, the character of a district were to undergo a rapid change. Also it should be possible at any time to add to the details of a planning scheme without going through all the formalities required now in making a scheme. For instance, if a new road were required, it should be sufficient if notices of intention to make same were posted in the district and advertised in the local papers as is done now in the case of private improvement schemes.

It must also be remembered that, so far as roads are concerned, there is as much necessity for planning rural areas as urban. It would be somewhat farcical if, on passing legislation to make planning obligatory, it was only imposed on urban areas, for the effect would be that probably the greater number of houses built in rural districts would continue to have four-fifths of the site area of the house covered with buildings, and the

same little back-yard to each, as is now the case in urban districts.

## MATTERS IN A SCHEME NOT OF IMMEDIATE NECESSITY.

With regard to other matters that should be considered when a planning scheme is under consideration, it is sufficient if these are simply noted here, the idea being that they should be considered when the need for this arises and if they are then placed upon the map and included in a supplementary scheme.

In very many districts the matters below are of immediate necessity, and the Local Government Board, if planning is made obligatory, would insist on such districts taking in hand the preparation of full and detailed schemes, whilst in sparsely populated districts where no development was going on it would be sufficient if the obligatory requirements were dealt with.

The matters above alluded to are as follows:—

Lines of sewers and water supply. Detailed plans for districts showing: (a) Residential districts; (b) position of shops; (c) land for playgrounds and recreation grounds; (d) factory areas.

## NATIONAL FEDERATION OF BUILDING TRADES EMPLOYERS OF GREAT BRITAIN AND IRELAND.

MR. W. F. WALLIS, as President, took the chair at the half-yearly meeting of the above Federation, held at Brighton on July 26. There was a good attendance of delegates. A civic welcome was extended to the visitors at the commencement of the proceedings by the Mayors of Brighton and Hove.

The half-yearly report of the officers and council dealt with a number of matters. It was stated that the joint sub-committee had now approved of the final revision of the form of sub-contract, and had ordered the proposals to be sent to the Confederated Sub-contractors for their consideration and observations, which were expected shortly. Reference was also made to the form of contract drawn up by the North-Western Federation, to the Belgian Builders' Fund, the apprenticeship question, pre-war contracts, and the damage to roads by heavy motors.

On the motion of the President the report was adopted.

Mr. Van Ophen (Secretary of the International Federation of Building and Public Works Contractors) sent the following letter:—

"I expected to be able to attend your meeting in Brighton to greet yourself and my other English friends and colleagues in the names of the contractors of the Allied countries. I am unfortunately deprived of that pleasure and prevented from fulfilling that duty, for a telegram recalls me to Paris. I am therefore obliged to present to you by letter the assurance of my profound sympathy of which, in my quality of Belgian, I desire to show once more an expression of my feelings of lively recognition for the help so friendly and so useful which the members of your Federation have given to my unfortunate compatriots, and who have found in England a second home. The blood shed in common in the war brings us each day nearer to one another, and the heroic efforts of the Allied soldiers for the same just and noble cause affirms the expectation of a glorious peace in the near future which will bring with it the dawn of a fecund era marked by a community of interests and principles among the Allied nations in every sphere of their activity. We must look ahead now and make ready for this new economic situation, which is intended to prevent the German trade expansion from continuing to exercise its injurious influence in the world. That is why I propose to call together in Paris an Inter-Allied Conference to discuss there the important problems of the future, and I hope that the English Federation will affirm the importance of the industry it represents by sending to the conference a few delegates who will meet there their friends from France, Belgium, and Italy,

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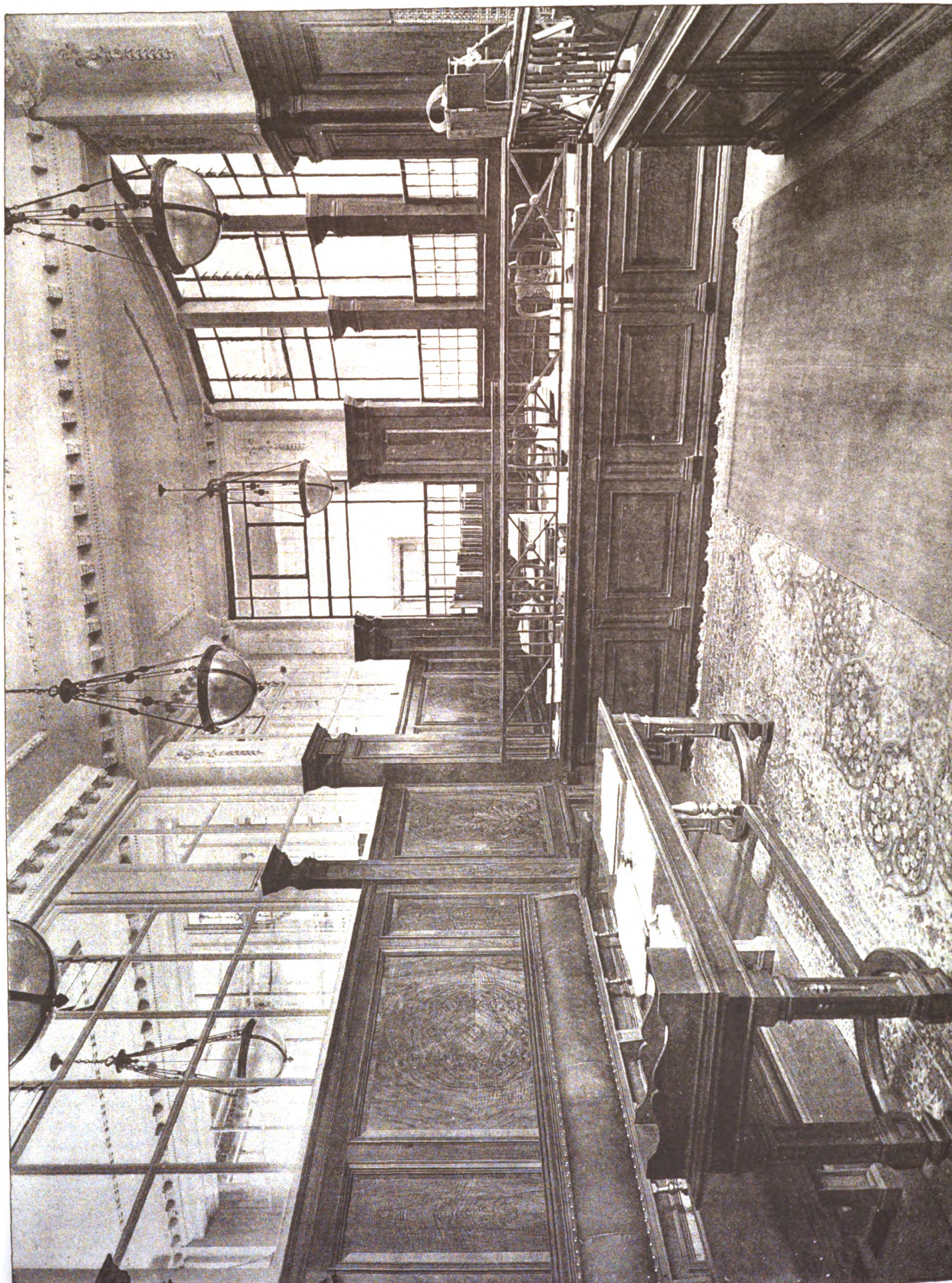
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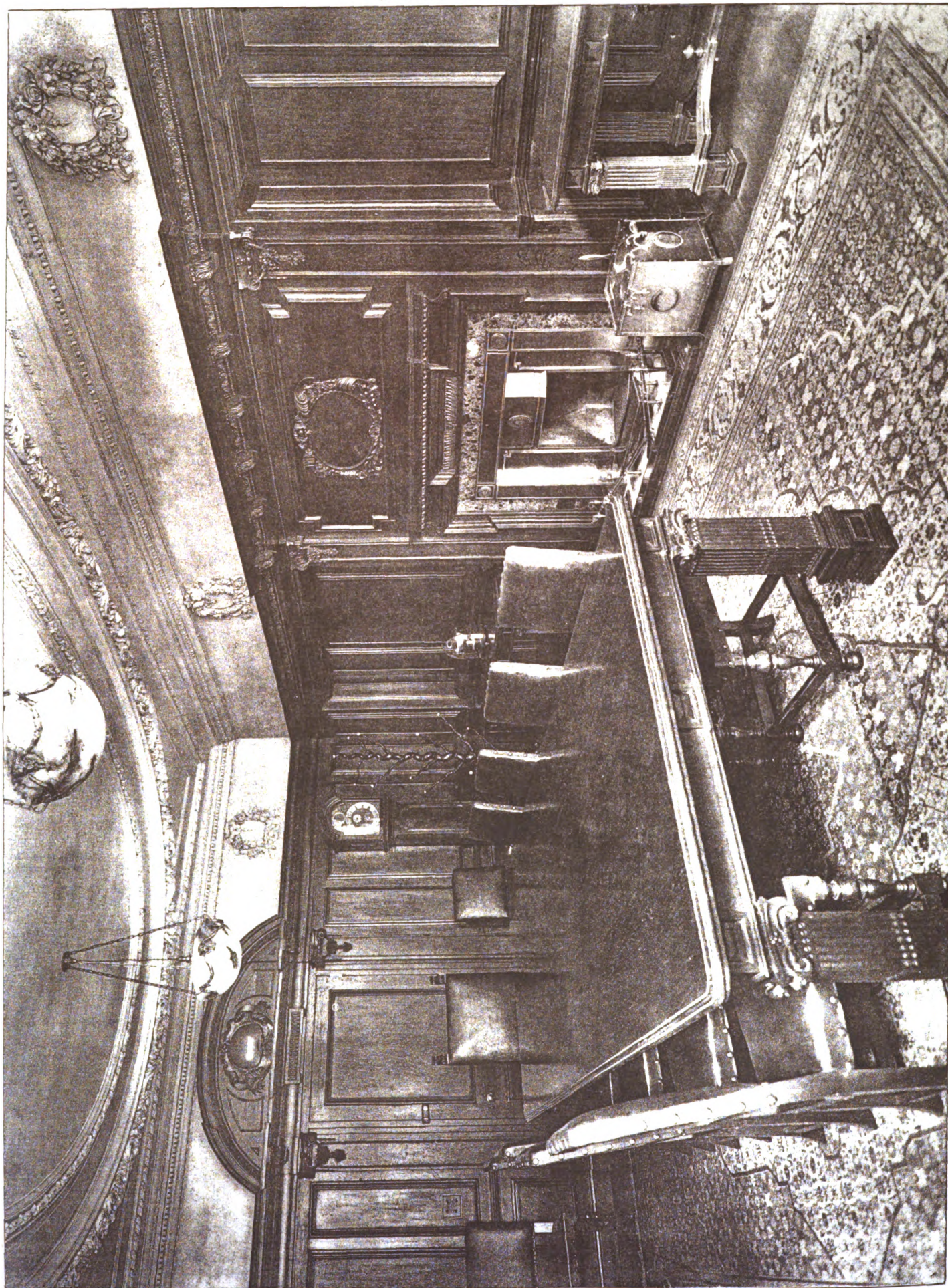
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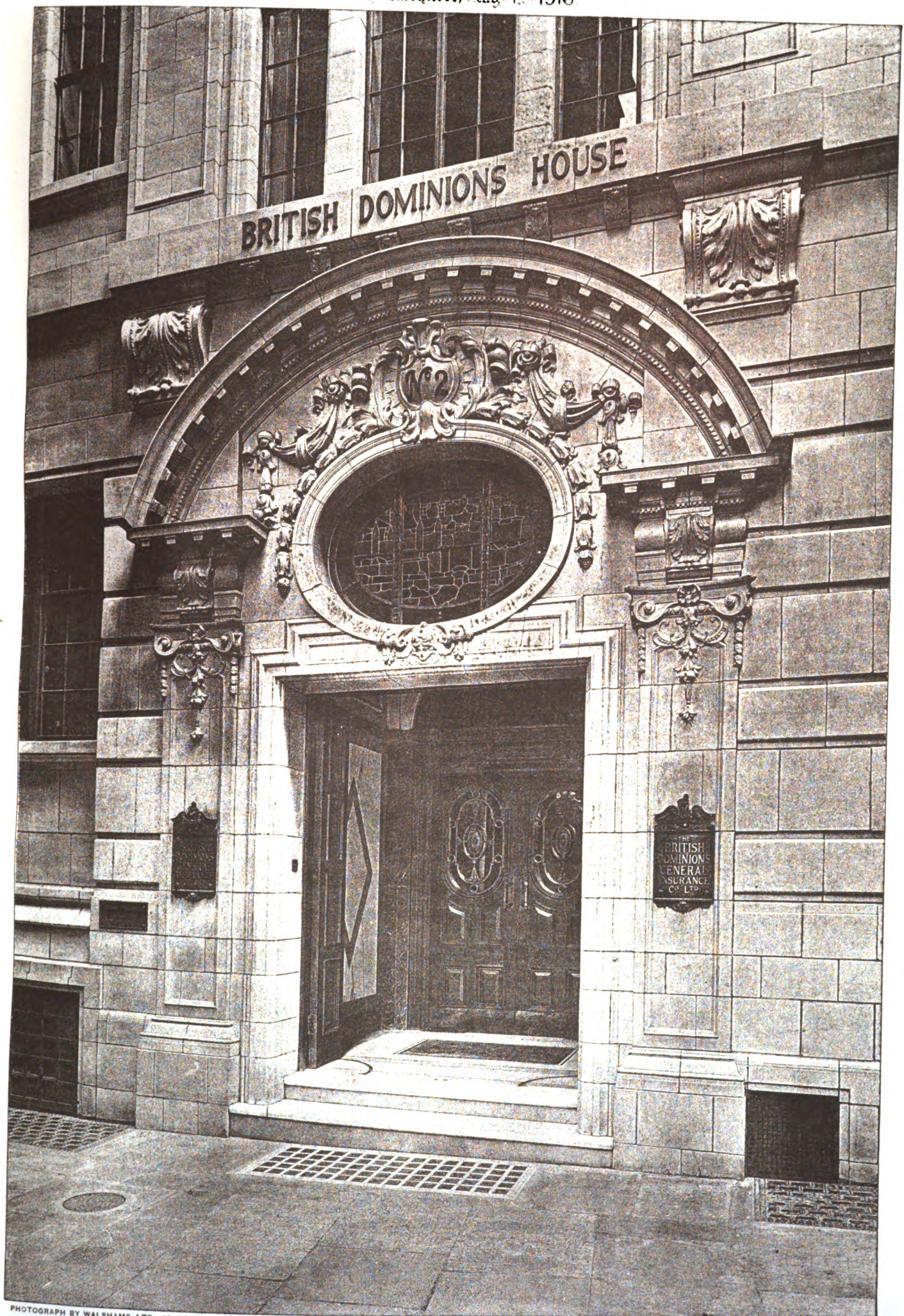
INK PHOTO. SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

BRITISH DOMINIONS HOUSE, FINCH LANE, LONDON, E.C.: FAÇADE TO FINCH LANE.

Mr. A. H. MOORE, A.R.I.B.A., Architect.

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MR. A. H. MOORE, A.R.I.B.A., Architect.









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BRITISH DOMINIONS HOUSE, FINCH LANE, LONDON, E.C.: FIREPLACE AND DOORWAY IN UNDERWRITERS' ROOM.  
MR. A. H. MOORE, A.R.I.B.A., Architect.

PHOTOGRAPH BY WALSHAM, LTD., 90, DOWNEY STREET, W.C.





also come to consider and seek in common a solution of these problems and bring their help and good will to the aid and support of the action taken by the Allied Governments."

The Administrative Committee reported having considered the letter, and had decided that the proposed meeting should be approved of and that the Federation should be represented.

The action of the Committee was approved.

A statement made by Mr. S. Easten showed that at the end of July a sum of £2,688 had been received on account of the Belgian Builders' Fund, and £2,538 had been expended. Some of the associations were in arrears with the amounts promised, and the Council recommended the passing of the following resolution, which he moved:—

"That this Council is of opinion that there is an honourable obligation upon the Federation and local associations to fulfil the resolution passed at the Leeds meeting by paying up the arrears to the end of July, and recommends the general meeting to confirm this resolution and use its influence to secure that these arrears are got in; and that any further obligation be considered as a fresh undertaking and dealt with as such."

Mr. E. G. Brown (London) seconded the motion, and it was carried.

The Secretary explained that two proposals had been received from the Northern Counties Federation with reference to the subject of income-tax. The Council had considered them and amalgamated them, and recommended the following resolution for adoption:—

"That the National Federation should enter into arrangements with the Inland Revenue Department to pay income-tax on its surplus revenue, and the centres, county federations, and local associations be advised to enter into a similar arrangement to secure the allowance of members' subscriptions to their association as a proper deduction from their profits."

On the motion of Mr. Easten (Newcastle-on-Tyne), seconded by Mr. E. Hill (London), the resolution was passed.

It was reported that the Council had considered a report of the Administrative Committee on certain proposals for an alternative form of contract which had been prepared by the North-Western Federation, and had passed the following resolution:—

"That the proposals should be adopted as a draft to be sent by the Federation for consideration and report, and that reports be requested in time for the November meeting of the Administrative Committee, and the latter be given power to take the necessary steps to place the proposals before other bodies concerned if in its opinion the reports justify; and to report fully to the next executive meeting."

Mr. Storrs, in moving the resolution, said the North-Western Federation believed the suggested form was a considerable improvement on the old R.I.B.A. form, and the Executive Committee considered the time had arrived when the views of the country should be obtained on it.

Mr. Blackburn seconded the motion.

Mr. Hope expressed the view that the draft should be adopted as the draft of the National Federation.

Mr. Moffat endorsed this view, and said it ought to be suggested that the National Federation would adopt it as an alternative form to that of the R.I.B.A. if the country gave them sufficient backing.

Mr. Smethurst pointed out that the Federation could not adopt the draft until the various associations had had the opportunity of considering it.

Mr. Skinner (Chatham) expressed the opinion that every association should have the opportunity of considering the draft before it was accepted as the recommendation of the Federation.

Mr. Storrs said he wished to make it quite clear that the draft had not been adopted by the Federation. They must first give every constituent part of the Federation an opportunity to express an opinion upon it.

The resolution was passed.

A communication having been received from the Sheffield Association on the question of the position of apprentices after the war, the Secretary reported that the Council recommended the following resolution:—

"That the officers be appointed a Committee to meet the heads of the Operative Unions and discuss the question of the position of apprentices the serving of whose apprenticeship has been disturbed by the war, with a view to arriving at a practical solution, and that the Committee be empowered to add to its numbers."

Mr. Forsdike (Sheffield) proposed the resolution, and explained the difficulty which would arise at the end of the war when young men came back who were too old to be apprentices and were not sufficiently skilled to be journeymen. It was both to the interests of the employers and the operatives that these men should not be thrown on the labour market.

Mr. W. J. Renshaw (London) seconded the motion.

Considerable discussion followed on the question of apprenticeship generally and on the great shortage of apprentices in the trade, which was being largely caused by the high wages being paid to boys in other occupations. Mr. Howarth (Rochdale) made the suggestion that the Trades Unions should be consulted as to a relaxation of their rules regarding the age of apprentices, so that young men returning from the Front, and who no longer wished to follow the sedentary occupations they were in before the war, might become apprentices at an older age than was now allowed. If that could be done he thought they would get a fine body of men into the building trade.

The President promised that the suggestion of Mr. Howarth should be carefully considered.

The resolution was adopted.

It was agreed that the applications of the following Unions for admission to the National Demarcation Scheme should be acceded to:—

- (1) The United Order of General Labourers of London.
- (2) The National Association of Operative Concretors and Asphalters.
- (3) The National Union of Gas-workers and General Labourers of Great Britain and Ireland.

It was agreed, without discussion, that the following resolution submitted by the East Glamorgan and Monmouthshire Valleys Association should be referred to the Administrative Committee:—

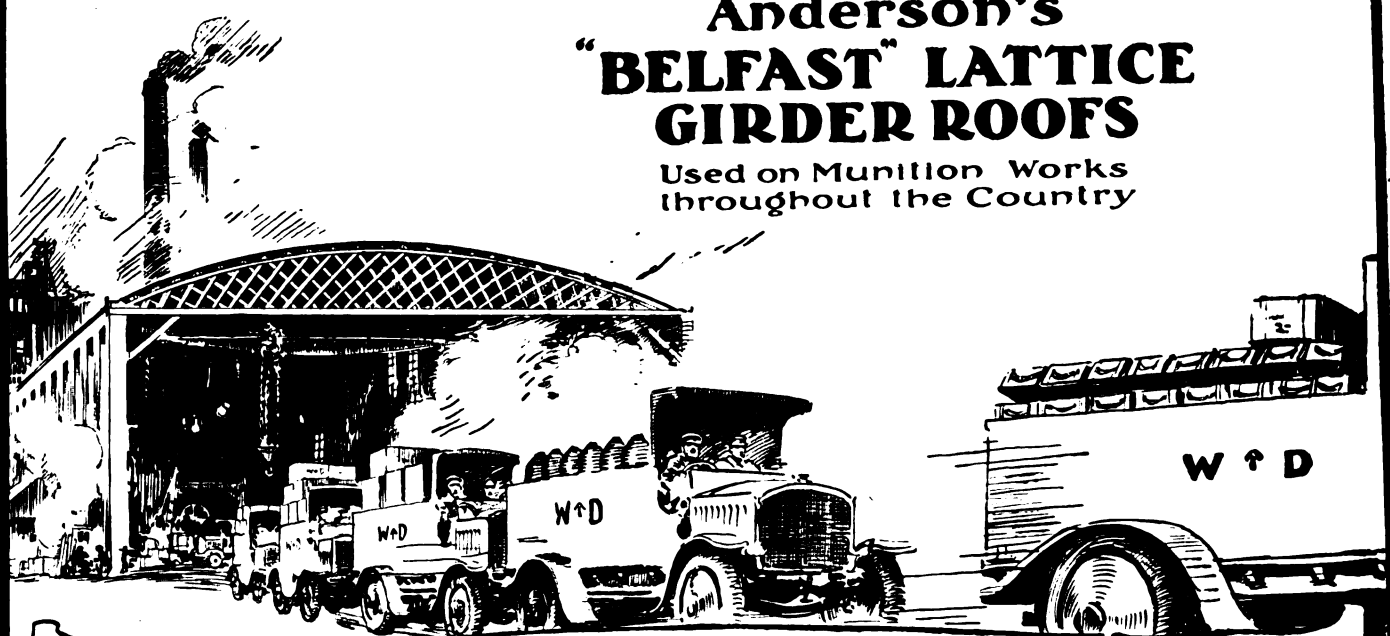
"That this meeting unanimously resolves that the Board of Trade be petitioned to seriously consider the inflated prices of all building materials, and hopes that His Majesty's Government will take steps to remedy this hardship."

Mr. Rice proposed the following resolution on behalf of the London Master Builders' Association:—

"That this meeting considers that the present is an opportune time to revise our system of money, weights, and measures, so as to bring them into harmony with the metrical system prevailing among the rest of the Allied Nations in order to facilitate trade relations between them and us after the war, and requests the Administrative Committee to make representations on behalf of the Federation to the Government accordingly, co-operating if practicable with other bodies which are moving in this direction."

In proposing the resolution, Mr. Rice referred to the fact that the prosperity of builders was bound up with that of those who depended for their income on their trade with foreign countries; and it was this class of the community as represented by the Chambers of Commerce, which had decided after long and careful consideration that a change was necessary in their system of coinage and weights and measures. The surveyors also had considered the matter, and from what he had gathered many of them believed such a change would greatly simplify the preparation of quantities. Those who did not understand the system would have the advantage of studying the exhaustive report which the Secretary had made on the subject. As builders, they were





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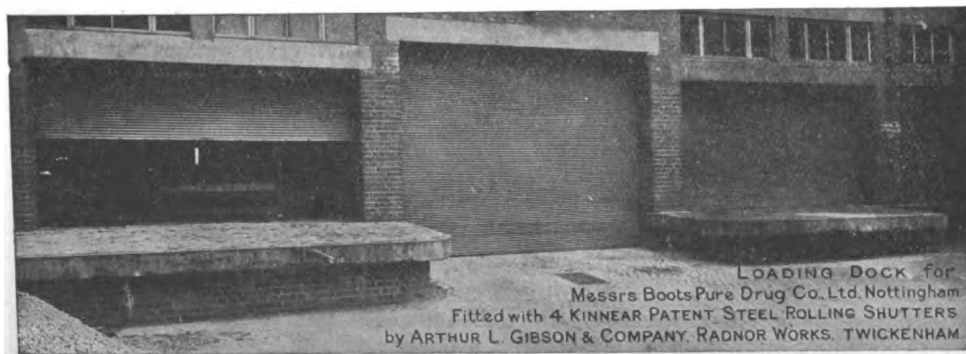
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accustomed to overcome difficulties, and he did not think they would find any difficulty in the adaptation of the system to their particular industry which they could not overcome.

Mr. T. Foster seconded the motion, and said he did so because of the convenience it would be to their own industry.

Mr. Hill said they would have many thousands of men coming back from France at the end of the war who had become familiarised with the decimal system of coinage.

After further discussion the motion was unanimously adopted.

The Secretary reported that the subject of the Order restricting building operations had been before the Council at the previous day's meeting, and it was recommended that the following resolution be passed:—

"That this Executive Council approves the action of the officers in their discussion of this matter with the Minister of Munitions, and gives them authority to take any case of material hardship caused by the stoppage of work in progress to the Minister with a view to settlement. That this Council, appreciating that the requirements of the State have necessitated the stoppage of certain contracts, and that the Minister of Munitions has appointed the President of the Royal Institute of British Architects in an advisory capacity, respectfully requests that as very important technical and financial points are involved, and as a matter of equity, the President of the National Federation should be appointed in addition in a similar capacity. That a circular be issued to all associations notifying that any question of material hardship may be referred to the National Federation."

Mr. J. Storrs proposed the resolution, and explained the action which had been taken in waiting on the representative of the Minister of Munitions.

Mr. S. Easten, in seconding, pointed out that the stoppage of any job would cause hardship, but it was felt that only material cases of hardship should be brought before the Federation.

A discussion took place as to whose duty it was to notify work in progress and to make application for licenses to embark on work.

It was stated that the duty fell to the builders, and Mr. Storrs said he would advise builders to make applications rather than leave it to the architect or building owner.

The resolution was carried.

Mr. Foster (Burnley) proposed the following resolution from the North-Western Federation:—

"That the members of the National Federation of Building Trades Employers in general meeting assembled welcomes the Government's decision to appoint a Committee to consider the reconstruction of national education, and respectfully urges that the Committee should specially consider the need for day continuation schools in which those children who have left the elementary schools and cannot attend secondary schools shall continue their general education for eight or nine hours weekly up to the age of at least seventeen years, and that technical training should be associated with such general education whenever possible. Copies of the resolution to be sent to the Prime Minister, the President of the Board of Education, and to Lord Crewe, the Chairman of the Committee."

Mr. W. J. Renshaw seconded the motion, but said it should be made clear that the Federation did not want trades taught in schools. They felt that the proper place in which to learn a trade was the workshop.

The motion was carried.

Mr. Amphlett (Birmingham) explained to the meeting the action taken in the Midlands to issue to the secretaries of local boards rules and regulations with regard to the presentation of cases under the Conciliation Scheme to the Centre Board, and said he would be pleased to furnish any secretary with a copy.

On the motion of Mr. Moss (Liverpool), seconded by Mr. Easten, it was resolved to revive the Secretaries Conference.

A hearty vote of thanks to the Chairman concluded the proceedings.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### The New Finance Act, 1916.

SIR,—Permit me to draw the attention of your readers to the following Income Tax concessions granted by this Act:—

1. The allowance for children under sixteen is extended to incomes not exceeding £700 per annum.

2. The scale of graduation for earned and unearned income is modified so that an income just exceeding the maximum of any class may still enjoy the rate and allowances of that class—e.g., a person with a total earned income of £705 and two children under sixteen will pay tax £77 10s. in lieu of £88 2s. 6d. (£705 at 2s. 6d.).

3. Persons serving in the Army and Navy or engaged in ambulance work abroad are to be assessed at lower rates on their Service pay. (The rates vary from 9d. to 3s. 6d.)

4. Income taxed in the Colonies is not to be taxed again in the United Kingdom beyond 3s. 6d. in the £1.

5. "War insurance premiums" on life policies will be allowed irrespective of the one-sixth limit.

6. Individual taxpayers may substitute the income of the year for the three years' average.

7. Income tax on earned income may be paid in two equal instalments due January 1 and July 1.—Yours, &c.,

THE INCOME TAX RECLAMATION ASSOCIATION, LTD.

WILFRED T. FRY.

July 28, 1916.

Secretary.

#### Alien Free Lances.

SIR.—The habitat of the alien building trade free lance is the East End of London. This is where he resides, and where the larger part of his clientèle also have their residence. His numbers are many, and the trades he represents, in a more or less successful manner, are also numerous. If you should wander down some of the by-streets leading off the Whitechapel Road in the early morning, you will come across the employment agent. This gentleman conducts his business in the street, and he keeps early hours so as not to interfere with the traffic. People who want jobs of any kind done, not only rapidly but cheaply, come here, and men who are prepared to do these jobs cheaply, if perhaps not very efficiently, come here also. The alien plasterer, glazier, carpenter, and others come here. So also do Englishmen, as a rule elderly men who have fallen out of the ranks of organised labour and who seek work. The life-story of these latter is often a sad one. "Three panes to be put in at 999 Settle Street," shouts the agent. "anyone here?" There is sure to be for such a job as this. Two or three elderly men with their glass on their backs step forward, and the man who wants new glass put in smiles, he can cut down the price by pitting one against another. The agent pays no heed to the argument but proceeds with his business. "Carpenter wanted." "What for?" asks a man in the audience, and the question at once indicates his limitations. This man and the client also confab together. After the agent has completed his business, and drawn his commission of 6d. from each client who has been suited, he goes his way and the audience disperses.

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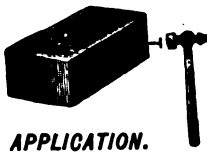
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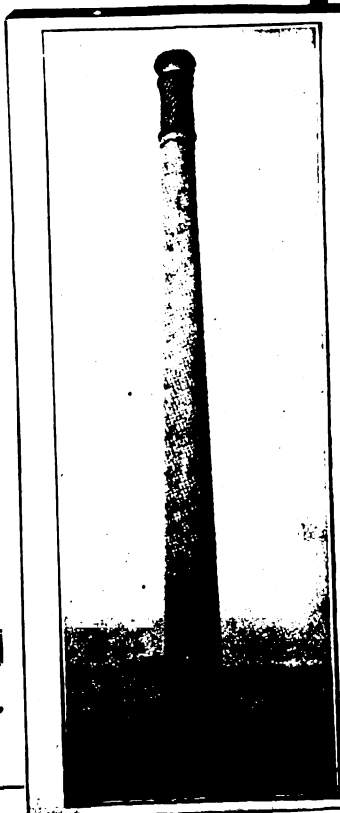
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Road and on to the Ghetto to seek jobs. Other men seek out small "contractors," save the mark, to see if there is anything for them there; still others who have been able to afford it and have risked the price of an advertisement in a morning paper, it may be days ago, go to the office in the hope of perhaps hearing from a customer who wants some plastering or brick-laying or rough carpentering done. The alien free lance, like most other free lances, knows much of the seamy side of life. He is a very feeble competitor of the skilled tradesman, although he sells his labours for a song, for his abilities are so limited he can seldom undertake any but the simplest jobs.—Yours, &c.,  
D. G. R.

#### A Rural Reformation.

SIR,—For the past two or three months there has been in existence an informal round-table conference of men and women prominently concerned with the question of rural reform. They have considered the reports of the various Committees and the Small Holdings Colonies Bill before Parliament; they have had interviews with the Departments concerned, and have been thanked for the help they have been able to give. Although an informal body, whose members act here in an individual capacity only, the Conference is attended by members of the following societies:—The Central Chamber of Agriculture, the Agricultural Organisation Society, the Farmers' Club, the Rural Housing Association, the National Land and Home League, the Housing Organisation Society, the National Housing and Town-planning Council, the Copartnership Tenants' Housing Council, and the Garden Cities and Town-planning Association. In addition to these were the members of the Houses of Parliament who have taken most interest in the Bill, together with several of the signatories of the reports.

The following resolution has been adopted by the Conference:—

That this Conference, while recognising the importance of rapidly developing facilities for small holdings, records its conviction:—

(1) That, for the great majority of ex-service men desiring a life in the home country as workers on the land, employment at wages, whether on farms or in schemes of reclamation or afforestation, affords the only practicable opportunity, at any rate in the first instance;

(2) That urban ex-service men will not be willing to accept such employment unless wages and houses are greatly better than they were on the average before the war; and

(3) That, both in recognition of the services of our sailors and soldiers and on grounds of national expediency, the need of a Government policy and legislation to effect such improvement in wages and housing is immediate and urgent.

—Yours, &c.,

EWART G. CULPIN, Secretary the Garden Cities and Town-planning Association, 3 Gray's Inn Place, Gray's Inn, London, W.C.: July 27.

### BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

#### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### DERBYSHIRE.

*Derby*.—Works, Spondon, for the British Cellulose and Chemical Manufacturing Co., Ltd.

##### DEVON.

*Ottery St. Mary*.—Premises: alterations for the Exeter Co-operative and Industrial Society. Mr. R. M. Challice, architect, 7 Bedford Circus, Exeter.

##### DURHAM.

*Sunderland*.—Boiler house, South Docks, for Messrs. Brotherton & Co.

##### ESSEX.

*Barking*.—Premises: additions for the London Butchers' Hide and Skin Co., Ltd.

*Brightlingsea*.—House, Eastern Road, for Mr. J. Stammers.

*Chelmsford*.—No. 5 Moulsham Street, for Mr. J. A. Hankin.

*Stratford*.—Premises, Sugar House Lane: alterations for Messrs. Hodson.

##### GLOUCESTERSHIRE.

*Lydney*.—Althorpe House: conversion into London and Provincial Bank premises.

##### HERTFORDSHIRE.

*Berkhamsted*.—Premises, King's Road: additions for Messrs. Button & Sons.

Theatre, Back Lane: alterations for Mr. D. Pike.

##### KENT.

*Gravesend*.—Factory, Northfleet, for the Thames Metal Co., Ltd.

##### LANCASHIRE.

*Blackpool*.—The "Wine Lodge": alteration for Mr. P. Yates.

*Radcliffe*.—Proposed premises for the Eccles Provident Co-operative Society.

*Crompton*.—Mill: rebuilding for Messrs. Hardman, Ingham & Dawson.

*Farington*.—Proposed works for the Leyland Motors Company.

##### NOTTINGHAMSHIRE.

*Retford*.—Works, Century Road, for the Doncaster Wire Manufacturing Company.

##### STAFFORDSHIRE.

*Bilston*.—Warehouse, Tunnel Street, Coseley, for Mr. C. Pountney.

*Chase Town*.—Parish church: additions and alterations (£10,000 to £12,000).

##### WORCESTERSHIRE.

*Kidderminster*.—"Walverley Court": alterations for Mr. Pilling.

Show rooms and stores, New Road, for the Carpet Manufacturing Co., Ltd.

##### YORKSHIRE.

*Barnsley*.—Foundry, Pontefract Road: alterations for Messrs. Needham Brothers & Brown.

Warehouse, Agnes Road, for Mr. C. Charlesworth.

*Honley*.—The "Live and Let Live" Hotel: alterations.

*Huddersfield*.—Fifteen houses, Royds Wood, for the Corporation (£4,000).

*Skipton*.—The "Black Horse" Hotel: alterations for Bentley's Yorkshire Breweries, Ltd. Mr. J. W. Broughton, architect, 19 High Street.

#### WALES.

*Pontypridd*.—St. Mark's Church, Pwllgwaun: new chancel and extension (£700).

#### SCOTLAND.

*Stirling*.—Twelve houses, New Street, for the Cambuskeneth Building Co. Mr. J. Fraser, architect, 27 Murray Place.

#### IRELAND.

*Dublin*.—Nos. 1-4 Usher's Quay: rebuilding. Mr. G. L. O'Connor, F.R.I.A.I., architect, 27 Dawson Street.

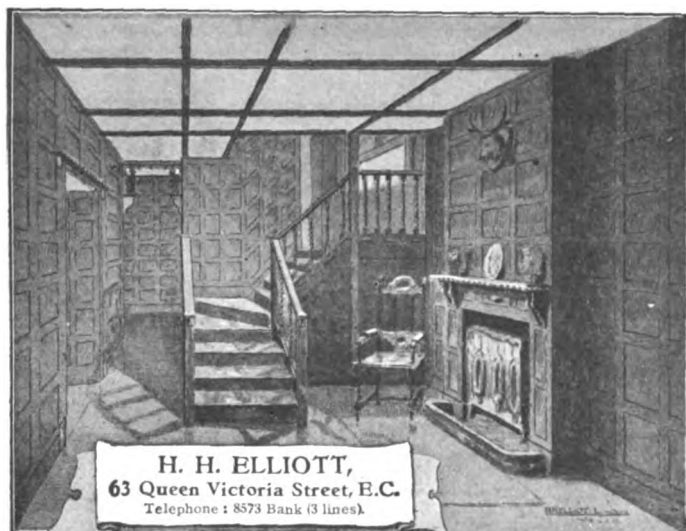
Mr. Kirkham, contractor, 22 Charlotte Street.

Premises, Earl Street. Mr. F. Bergin, C.E., architect, Westmoreland Street. Messrs. J. Pemberton & Son, contractors, 23 Charlemont Street.

*Killorglin*.—Labourers' Cottages (£3,300) for Killarney R.D.C.

*Loughall*.—Dispensary: alterations for the Cope Trustees.

THE London County Council has received, through Messrs. Trehearne & Norman, an offer from a syndicate of a rent of £1,950 a year, for a lease of 99 years, from September 29, 1916, of a site on the western side of Kingsway, adjoining Koh-i-Noor house. The site has an area of about 7,800 square feet and a frontage of 80 feet to Kingsway. The offer is made subject to (i.) the peppercorn period being allowed to extend until one year after the declaration of peace, and (ii.) a deposit of one-half of a year's ground rent being accepted. The site has not been submitted to auction, but boards have been erected on which notices have been displayed intimating that the land is to be let.



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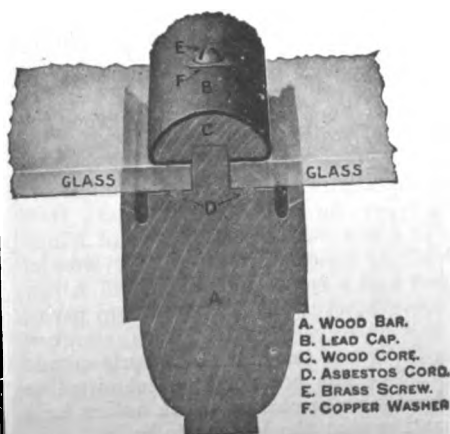
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# THE ARCHITECT

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## THE INFLUENCE OF ART.

THE discussion initiated in the "Times" by the recent article entitled the "Discovery of the Cathedral" has ranged chiefly around the correct use of such buildings, the objection or complaint of the original writer being that cathedral choirs were treated as if they were museums, and that it was impossible for them to have their proper religious effect so long as they could be entered only in company with a verger.

The argument of the apologists for the maintenance of the usually prevalent custom may be accepted as expressed in the words of the Dean of Norwich, speaking particularly of his own church. "Most of the visitors," writes the Dean, "who come to cathedrals now are soldiers stationed in the place, or convalescent wounded from neighbouring hospitals, and it is our experience that they do not find the church 'speak to their spirit' without some interpretation. What they look for is a sketch of the history illustrated by the changes in style."

In his reply it will be seen that the Dean entirely misses the point of the complaint, and merely asserts that in his experience there is a demand for the usual type of quasi-historical or descriptive lecture that visitors are accustomed to hear from vergers as they are shepherded in flocks during their perambulation of the reserved portions of our cathedrals.

At their best these lectures do not attempt to convey more than instruction in history and archaeology, mingled too often with flippant, stereotyped jokes intended to relieve with amusement the boredom of instruction in unfamiliar themes, but utterly destructive of all the deeper significance of religion and art. The claim by the Dean of Norwich for the necessity of such "interpretation" to our convalescent wounded is particularly unfortunate, for if there is one fact that more than another has obtained general recognition as a moral fruit of the war, it is that those who have lived through the experience of the trenches have heard more clearly than ever before the messages that "speak to their spirit" of the deeper realities of life—and death. Our convalescent wounded are precisely those who are likely to be receptive of the unspoken and uninterpreted influence of religion and art. It is a chronic misconception of officials of all churches that, in the words of the Dean, "General arrangements have to be made for ordinary folk," and that religion and art cannot exert their influence or reach the comprehension of ordinary folk without the interpretation of priest and verger.

It is likewise a mistake to suppose that people go to a cathedral merely to learn something of its archaeology, that "what they look for is a sketch of the history illustrated by the changes in style." Already many of the clergy, of less exalted positions than deans, open their churches freely to all comers for those who desire therein "rest and meditation." Sight-seers no doubt there are, and the temptation to become such is enhanced by the organised provision for their reception. Facility for a

wrong course increases its pursuit, but it is equally true that the right road is more likely to be followed when it is plainly open and not impassably barred. Therefore, our cathedral authorities ought to allow free play to the voice of religion and art as they speak to the spirit.

The full extent of the influence of art and of religion cannot be adequately gauged without recognition of the operation of sub-conscious mental activity. This, as we once heard it expressed by an university professor, "Though, from its nature, incapable of scientific demonstration, is a subject of legitimate speculation," and is now generally admitted by experts in mental science as an actuality and the only satisfactory explanation of certain phenomena in mentality.

Call it what you will, sub-conscious mental activity, the feeling of the spirit, the eye of the soul, there is something within us that is responsive to influences beyond those which we recognise as entering our consciousness by the medium of eye and ear or of the other physical senses. It is this something that is affected by the true and deeper influence of art, that feels the message of a beautiful cathedral or any other thing of beauty without any reference to the distinction between Norman and Early English, or of the transition from this latter to Decorated. It is the same with music that is really great art. Apart from the critical and recognisable evolution of a theme or persistency of a leit-motiv there is an imponderable and undefinable message that conveys the innermost and possibly sub-conscious thought or feeling of the composer or the executant, which affects not only the connoisseur but the Philistine, and, indeed, the latter more often and more forcibly than the former. For the connoisseur and the critic are likely to be pre-occupied with the language of art and to miss, in their obsession, its message and influence.

The whole difference between the expression of the true artist and the production of the mechanical fabricant of presumably beautiful material objects or sounds lies in the presence or absence of that quality which gives to art its undefinable and untranslatable influence, which plays upon our deepest and innermost feelings.

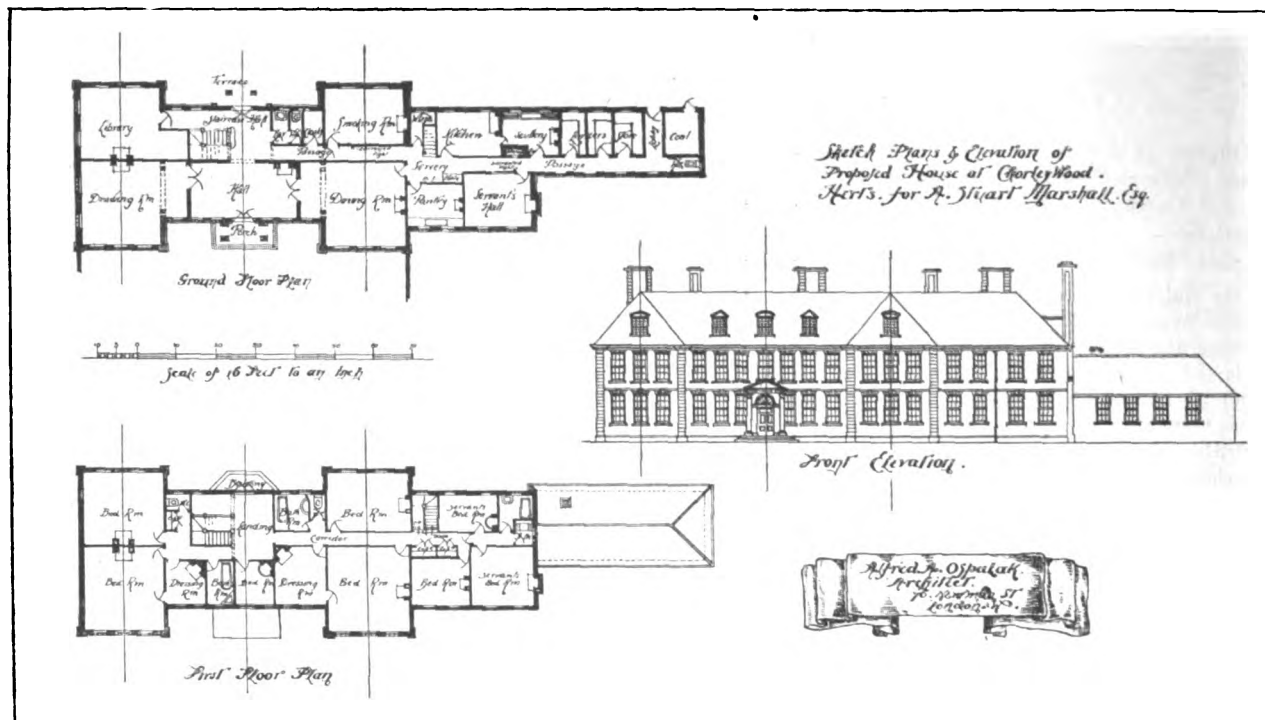
This influence of art runs parallel with the influence of nature. With the exception of that rare, and, we are even inclined to think, mythical individual of whom the poet wrote, "A primrose by the river's brink, a yellow primrose was to him, and it was nothing more," we all recognise that beyond what we see in the orange and gold of the sunset sky, the fleecy softness of the cumulus, the blue of the distant hills, the rhythmic wave of the golden corn, or what we hear in the sigh of the wind through the leaves of the wood, the murmur of the sea as it rolls on the beach, there is a deeper feeling that speaks to the spirit a message from the Supreme Intelligence. So the influence of art is the spiritual message that is conveyed from the soul of the artist to his fellow-man in the expression of himself in his work.

This expression, this influence of art as it speaks in our cathedrals, and in every other work of art, whether it be visual or audible, should be free to find its way to the spirit of all who desire to listen without interference by parrot-like reiterations of "a sketch of the history illustrated by the changes in style." As it is incapable of verbal explanation or interpretation, no attempt should be made to achieve the impossible.

We do not go so far as to say that no provision should be made for those who desire intellectual instruction in the archaeology of our cathedrals or in the history of which they are the illustration, but their custodians should remember that our great churches were not built to conserve the memory of those who wrought them, or even of those who in the past have used them, replete though they may now be with memorials of those whose fame and achievements have been deemed worthy of special distinction.

On the propriety of making a definite charge for the





attention of the vergers or for admission to jealously-restricted portions of buildings that owe their existence to the free-will offerings of the faithful departed, there needs, we think, no further comment than a reference to the experience of the money-changers and those who sold doves within the precincts of the Temple.

### PROPOSED HOUSE AT CHORLEY WOOD, HERTS.

THE site upon which this house is proposed to be built is in the midst of some very beautiful country. From all aspects of the house a charming surrounding landscape stretches for miles.

It is designed in the Georgian style, and simplicity has been aimed for. It is proposed to face the walls with red bricks, with the quoins and dressings to windows of a deeper-shade brick; the roof to be of very dark brown Wye tiles; the plinth, porch, and string to be of Portland stone, and the cornice of wood.

### NOTES AND COMMENTS.

THE failure of some members of the public, especially when they are placed in a quasi-official position, to comprehend the value of an architect's services and the amount of work which these entail, is illustrated by the remarks of a member of the Newcastle City Council when this body was discussing its agreement with Mr. Edward Cratney, F.R.I.B.A., the architect whose plans have been accepted for the Walker Housing Scheme. The member in question objected to a report by the Housing Committee that a payment of £750 should be made to Mr. Cratney, and affirmed that "There was no builder but would have got it all done for £150." When will the public understand that every penny they pay to a competent architect is fully earned, and that they get full value for what they pay? Public bodies spending public money ought to be the first to insist that the best professional assistance should be employed, and that the carrying out of work under skilled supervision is, in the public interest, of even more importance than the preparation of plans. The cost of the proposed Walker Housing Scheme is now estimated at £151,499. If the £150 plans got by a builder were adopted, the scheme would have cost some thousands more and have proved very bad value for the money spent. The truest economy is to have the best plans, and to have their execution supervised by their author up to the actual finish.

The Trustees of the National Portrait Gallery, in their fifty-ninth annual report, refer to the serious loss they have sustained through the death of their senior member, Lord Ronald Sutherland Gower, and by the resignation of Lord Fitzmaurice, next in seniority. The vacancies thus created were filled by the appointment of Mr. Lewis Harcourt, M.P., and Mr. Herbert Frederick Cook. The grant in aid for the purchase of portraits had been suspended for the duration of the war, and the Trustees state that they are dependent either upon gifts or upon such small savings as have been effected in the past. During the year a reference collection of likenesses of eminent living persons has been inaugurated through the gift to the library by Messrs. Russell & Sons of the first volume of their National Photographic Record, a series to which additions are made at regular intervals as sittings are given. The list of additions to the collection, which in former reports had reached 943, is in this extended to 954, of which possibly the most interesting inclusion to our readers would be the portrait of Walter Crane, R.W.S., painted in 1891 by George Frederick Watts, O.M., R.A.

The text has been issued of a Bill to amend the law as to the erection of buildings and the making and improvement of streets in connection with the reconstruction of areas, streets, and buildings recently damaged or destroyed in Dublin, and for other purposes incidental thereto. It is backed by Mr. Secretary Samuel, and ordered by the House of Commons to be printed August 1, 1916.

The Bill gives power to the Corporation of Dublin, if they should require, to purchase land under the Public Health (Ireland) Acts, 1878 to 1907, for the purpose of widening, opening, enlarging, or otherwise improving streets, or making new streets in the city of Dublin, in connection with the reconstruction of areas, streets, houses, or buildings destroyed or damaged in the course of the recent disturbances, to purchase the land compulsorily by means of an order submitted to the Local Government Board, and confirmed by that Board, in accordance with the schedule of this Act.

The Corporation are also empowered to make by-laws with respect to the structure, materials, design, alignment, and general symmetry of the new buildings.

Perhaps the most important provisions of the Bill are those contained in Section III., which reads:—

(a) Subject to the provisions of this section, the

Corporation may advance money on the security of the ownership of the site of any house or building which has been damaged or destroyed in the course of the recent disturbances for the purpose of enabling the house or building to be rebuilt or restored in such manner as will comply with the requirements of any by-laws of the Corporation under the Public Health (Ireland) Acts, 1878 to 1907, as extended by this Act.

(b) The advance shall not exceed the difference between the amount which the Local Government Board certify to be the total cost of rebuilding or restoring the house or building in such manner as aforesaid, and the amount of the compensation granted out of the public moneys in respect of the destruction or damage of, or to, the house or building; and no advance shall be made unless such compensation has been granted, and unless the Local Government Board certify that the advance is necessary for the purpose aforesaid.

(c) The advance shall be repayable within such period, with interest at such rate and by such instalments or otherwise as may be agreed upon subject to the sanction of the Local Government Board, but the term of repayment shall not exceed thirty years from the date of the advance, and the rate of interest shall not be more than ten shillings above the rate at which the Corporation can at the date of the advance borrow money for the purpose from the Commissioners of Public Works in Ireland, provided that, in the case of an advance in several sums successively, the foregoing provisions as to the terms of repayment and as to the rate of interest, shall have effect as respects each sum advanced if it were a separate advance.

(d) The repayment of the advance and interest as aforesaid shall be secured by a mortgage of the site of the house or building in such form as may be approved by the Local Government Board. The mortgage may contain provisions for authorising the advance to be made in several sums successively as the works of rebuilding or restoration proceed, and for ensuring that the advance will be applied in defraying the expenses of those works and such other provisions as the Board deem necessary, and no money shall be advanced unless and until the Board certify that they are satisfied that the value of the estate or interest assured by the mortgage is sufficient security for the repayment of the advance, and that the title to the estate or interest so assured is one which an ordinary mortgagee would be willing to accept.

(e) The Corporation may exercise all the powers and remedies for recovery of the principal money and interest which are expressed in the mortgage or implied by-law.

In this section the expression "ownership," in relation to the site of a house or building, means such interest, or combination of interests, as constitutes an estate in fee simple or fee farm in possession, or a leasehold interest in possession of at least sixty years unexpired at the date of the mortgage.

Section IV. allows the Local Government Board to authorise the acquisition by the Corporation of any site on which, two years from the passing of the Act, there is not a reasonable prospect of rebuilding.

The fall of a storage building in Glasgow, by which three lives were lost, illustrates the indifference with which the general public regard the possibility of a building being insufficiently strong to do the work they ask of it. This is particularly the case where buildings are used for purposes other than that for which they were originally constructed, as for example, a dwelling-house turned into a factory or warehouse. In these cases it often happens that the change of user accompanies a diminution of capability through age. The ordinary public have no conception of such a thing as "fatigue of material," and of the important part which it plays in the deterioration of the strength of a structure, cumulative in its effect in geometrical progression.

The Lanarkshire County Council have decided not to proceed with the scheme of erecting workmen's houses at Mossend, Cambuslang, and Carnyle which they have been asked by the Minister of Munitions to undertake in order to provide accommodation for munition workers. The Government offered to contribute 25 per cent. of the total cost, and the three firms of munition makers most concerned offered contributions amounting to about 6 per cent. of the estimated cost.

The grounds of opposition to the scheme were voiced by Mr. J. C. Pollok, who moved that the Council do not proceed with the scheme. It would not solve, he said, the housing problem with which they were faced. That problem was to remove the people from slums, and the houses which it was proposed to erect now would be given not to the present slum-dwellers but to respectable well-to-do families who could easily afford by saving to build houses for themselves. If there was a national need for houses for munition workers the Government should erect the houses as they had done at Gretna, Johnstone, and Rosyth.

Other speakers who supported the amendment expressed the view that the assistance offered would not make up for the increase in the cost of building at the present time. Nemesis is overtaking now the Government whose fatuous attacks on property-owners and land have during the last seven years done so much mischief to private enterprise in the provision of housing accommodation for the people.

The Scottish Art Teachers' Association have issued a memorandum on the commercial value of art in industry, in the course of which they say: "When all allowance has been made for the factors of superior national organisation, the fact remains that the astonishing advances made by our rivals are in no small measure due to the way in which the expert has been the trusted and honoured associate of the manufacturer. In this connection the members of the Scottish Art Teachers' Association feel it to be their duty to call attention to the comparative neglect in the past of the artistic factor in the numerous British industries that largely depend on the application of the principles of art. The Association has, during a long course of years, not only given prominence to this aspect of the subject, but has taken a leading part in the International Congresses of Art and Industry which have been held in various European capitals. The last congress was held in Dresden in 1912, and was attended by over 2,000 delegates from all parts of the world. More than fifty Scottish art teachers attended this congress. While they found that the art work of their own schools, as illustrated in the Scottish exhibits, was second to none, they noted with concerned appreciation the close relation that existed between the training of the art schools and the industrial requirements of the manufacturers of Germany, Austria, and Hungary. In these countries the art students in their later years worked in close relation to the manufacturers, and their knowledge and skill were immediately available for industrial requirements. This correlation enabled the manufacturers to form the tastes, as well as to meet the needs, of the home market, and to cater successfully for the various nations throughout the world. In the confident hope that the political and industrial problems are in process of solution, the art teachers of Scotland, as represented by this association, desire to put on record their belief in the excellence and adaptability of British applied art, and its ability, when properly made use of, to hold its own in any market, whether at home or abroad. Other things being equal, the essential point is that this national capital of artistic skill should be taken advantage of to the fullest extent. With this in view the Scottish Art Teachers' Association desires to call the attention of all concerned—manufacturers, Chambers of Commerce, and Government Departments—to the advisability of holding as early as possible a conference or conferences to discuss the problem of the bringing together

of the manufacturer and the expert with the view of giving to the designer his due place in our newly organised industries."

Probably no other county council in the country has such a historic residence as the West Sussex County Council will live in before long. "Wren House," Chichester, a fine and dignified old mansion, generally supposed to have been designed by Sir Christopher Wren, and dated 1696, is the most distinguished private building in Chichester, with a broad and elegant façade to West Street. It has large grounds, which will permit of any extensions found necessary to provide further accommodation for the ever growing army of officials which local government seems always to entail. Some people think the price which the county is to pay for this artistic home—£5,500, and expenses—is somewhat steep, and what opposition there was made to the proposal at the County Council meeting at Horsham was made on this ground.

Messrs. Rogers, Welch & Co., Ltd., of 26 Page Street, Westminster, are making a present to any architect, engineer, or contractor who applies for one of a handy and useful small sketch block ruled in squares to  $\frac{1}{8}$ -inch divisions.

## ILLUSTRATIONS.

### RAILWAY STATION, LA PAZ, BOLIVIA.

THIS railway station, designed by Mr. Arnold Mitchell, F.R.I.B.A., is on the same railway line as that at Antofagasta, illustrated in "The Architect" of July 21. We shall give further details next week.

### THE LATE MAJOR HERBERT PHILLIPS FLETCHER.

VERY sad were the circumstances attending the death of Major Herbert Phillips Fletcher, F.R.I.B.A., F.S.I., A.M.I.C.E., as described at the inquest by Sergeant James Davies, of the Royal Flying Corps, who said that on the afternoon of August 1 Major Fletcher alighted on an aeroplane, which he had been flying alone. He came down about fifty yards away from the spot where he had intended to alight, because, witness thought, his propeller had suddenly stopped. Witness at once sent a mechanic to assist him, but the man failed to restart the propeller after making two efforts. Major Fletcher then told the mechanic to take the seat in the aeroplane, and himself proceeded to start the propeller. Having done so he seemed to lose his balance, and, as the propeller started, fell sideways, getting mixed up with the propeller. The officer was found under the tail plane, which was broken, and he was terribly injured, and was afterwards conveyed to the Royal Flying Corps Hospital at Bryanston Square. Witness expressed the opinion that while in the act of starting the propeller the officer slipped and lost his balance.

Major Fletcher, of the Middlesex Hussars, at the outbreak of the war went out with his regiment to Egypt. He was then seconded to the French, and did reconnaissance work in the East on French seaplanes for some months, and was awarded the Croix de Guerre, both Military and Naval, for conspicuous bravery under fire. He was afterwards the officer commanding a British Observers' School abroad, and returned to England to take his pilot's certificate for future work with the Royal Flying Corps. Hence it is particularly sad that his career of so much brilliancy and usefulness as an officer should have been cut short by an accident when he had attained proficiency as a pilot-airman.

Henry Phillips Fletcher was the son of the late Professor Banister Fletcher, J.P., and with his brother Banister F. Fletcher was a partner in the firm of Banister Fletcher & Sons. He was born on February 27, 1872, and married the only daughter of the late T. T. Lindrea, Esq., J.P. He was educated at King's College, London, where he gained the gold medal

in the Architectural and Engineering Course. After qualifying by examination for membership of the Royal Institute of British Architects, the Surveyors' Institution, and the Institute of Civil Engineers, and as a barrister-at-law of the Middle Temple, he obtained the Godwin Bursary of the R.I.B.A. in 1904, and made his consequent tour through the United States, returning by way of Japan. Although engaged in an extensive practice and as Surveyor to the Worshipful Company of Carpenters, he found time to act as Director of the Trades Training Schools, maintained by the associated City companies especially interested in the building crafts. He was also with his brother joint author of a number of standard works on professional subjects, including The English Home, Architectural Hygiene, Carpentry and Joinery, Arbitrations, Quantities, London Building Acts, Valuations and Compensations, Light and Air, Dilapidations. He was a fine horseman and late deputy-master and joint-huntsman of the North Bucks Harriers in addition to his activities in the Yeomanry. He was also a good game shot and golfer, and a member of the Cavalry and Pegasus Club. Hence his early death has terminated a career of wonderful activity, and he will be acutely missed by a very large circle of friends in many different directions.

### THE LATE SECOND-LIEUT. A. HORSNELL.

WE have received from Mr. Arthur Bartlett, F.R.I.B.A., the following tribute to the late Second-Lieutenant A. Horsnell, Suffolk Regiment:—I should like, as a sometime fellow-townsmen of the late Second-Lieutenant Alick Horsnell, and as a member of the same calling, to put on record in your paper a few notes as to the very real loss the architectural profession in this country has suffered through his death in France. Alick Horsnell received his early training as an architect in Mr. Chancellor's office at Chelmsford, and his first success was the winning of the Architectural Association travelling studentship. Later he was for some time assistant in the office of Mr. Ernest Newton, the president of the Royal Institute of British Architects, and captured the two most coveted prizes for design offered by the Institute—the Soane medallion and travelling studentship and the Tite Prize. In both competitions his work showed a maturity of thought and knowledge of detail very remarkable in a man of his age. A short time before the outbreak of war he began private practice, and it seemed as if his efforts were destined to meet with a great and instantaneous success. He was placed first in a competition for some municipal buildings in the North of England, and no doubt would have carried them out at the end of the war. He was one of the few architects chosen from the preliminary competition to submit designs for the Board of Trade Offices in Whitehall; and he had also other successes. Alick Horsnell was undoubtedly well ahead of his contemporaries in the architectural profession, both in his mastery of design and his powers of expression. He was certainly fortunate in the training he received, and unquestionably he worked hard at his vocation; but there are hundreds of men in the same profession who were as well trained and who worked equally hard, without a tithe of his promise of success. He was the happy bearer of the spark of genius which lighted his path and allowed him to step out confidently ahead of his fellows. His unerring instinct in matters of taste enabled him to design in the manner of to-morrow rather than follow on the lines of yesterday; while his gift of brilliant draughtsmanship gave him power of presenting his ideas in the most attractive form. He was a man of scholarly and somewhat retiring disposition, and it is clear to those who knew him at all that his enlistment some eighteen months ago was brought about by his keen sense of duty and not through any love of adventure. Had he lived till the end of the war to take up his work where he left it there seems little doubt but that he would have won his way to a foremost place among the architects of the day.

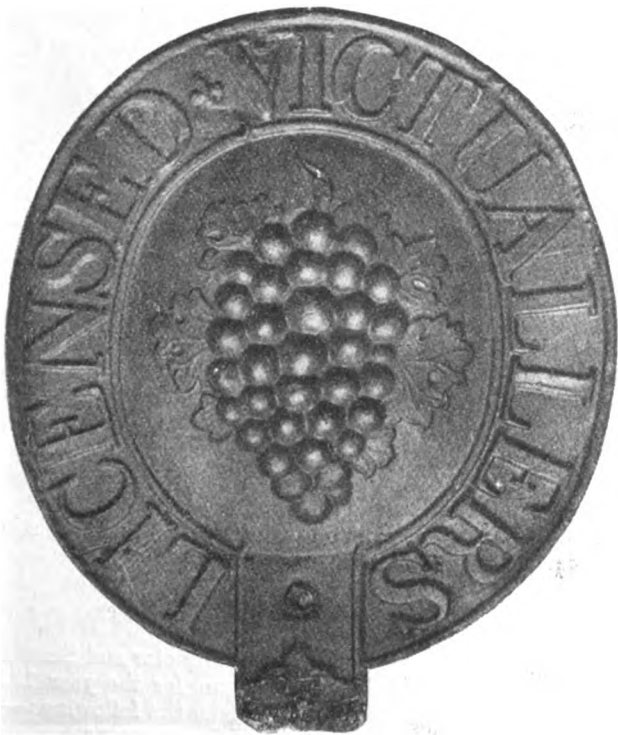


**SOME RARE FIRE-MARKS.***(Concluded from last week.)*

THE very rare photograph kindly lent by the well-known Scottish antiquarian, Mr. S. Bashall-Dawson, which is here shown, will interest readers. In an article in the "Connoisseur," written by Mr. W. F. Maynard, an experienced collector, there appears the following: "Up to now no definite information has been traced as to the name of the originator of the fire-mark, and this



15. LICENSED VICTUALLERS'.—Established 1857. Transferred to Liverpool, London, and Globe in 1865. This company transacted a large business insuring inns of the period. It issued three variants. This one very rare. Known to collectors as "head over barrel" type. Copper. (Tufnell collection.)



16. LICENSED VICTUALLERS'.—Another type. Copper. The third variant is stated to have letters other way, otherwise similar to this type. (Mackie collection.)

monument, erected in 1776, is also obscure on the point. It is somewhat curious that this obelisk should have been erected so many years after 'fire-marks' were in vogue, as these were being placed in position by the 'fire office' as early as 1680. This monument is erected on an estate at Putney Heath, in a portion of the grounds which formerly belonged to 'Fireproof House,' a curious structure now pulled down. By the courtesy of the owner I have been able to copy the

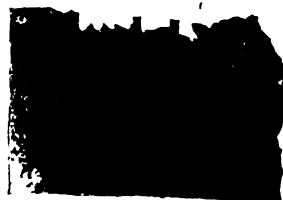
inscription, which is as follows, and is interesting reading: 'The Right Honble. John Saubridge, Esqr., Lord Mayor of London, laid the foundation stone of this obelisk one hundred and ten years after the Fire of London, on the anniversary of that dreadful event, in



17. LONDON AND LANCASHIRE FIRE OFFICE.—Established 1862. Flourishing to-day. A variant (now scarce) formerly used in Turkey, being Turkish lettering and arms of Lancashire. Copper. (Macwilliam collection.)



18. MANCHESTER. No. 2.—Established 1824, in 1904 transferred to Atlas. An earlier company existed of similar name. Issued a number of copper variants which bore arms of Manchester. This was used in the East, and the Chinese characters thereon signify "The Gate of the House of Righteousness," the name by which the Manchester Fire Office was known in China. (Macwilliam collection.)



19. NATIONAL FIRE OFFICE (OF LONDON).—Established 1819, transferred to the Royal in 1888. Its variants are extremely scarce. This battered piece of old iron represents what is left of one of the rarest. (Tufnell collection.)

memory of an invention of securing buildings against Fire.' No greater testimony, though belated, can possibly arise as to the importance of the sign in those days.

With regard to the accompanying illustrations, it

may be well to mention here that not any of them have appeared in prior print. Nearly all are extremely rare, and even the modern sign or two placed for an advisory purpose for collectorship can no longer be secured.

Many are the difficulties that arise for an author in search of a very rare illustration. Nearly four years ago the writer sought a "Bristol Universal." He knew of the sign. It was in the Collins' collection of old fire-marks and policies shown in the Fire Exhibition, 1903, Earl's Court. Then he found when applying that the sign had been packed away. Finally, this collection



20. BRISTOL UNIVERSAL FIRE OFFICE.—Dates and particulars seem unobtainable. A beautiful piece of eighteenth century heavy leaden work. Extremely rare. (Tufnell collection.)

passing into the hands of Mr. Carleton F. Tufnell, of Watendene Manor, he secured this illustration.

The portrayal of this sign will come as a surprise to many readers.

Another extremely rare sign is the leaden "Suffolk Amicable," a suspended lamb (really a golden-fleece device) thereon. There is, it is believed, only one of the policy-numbered type. The copper now is very rare too.



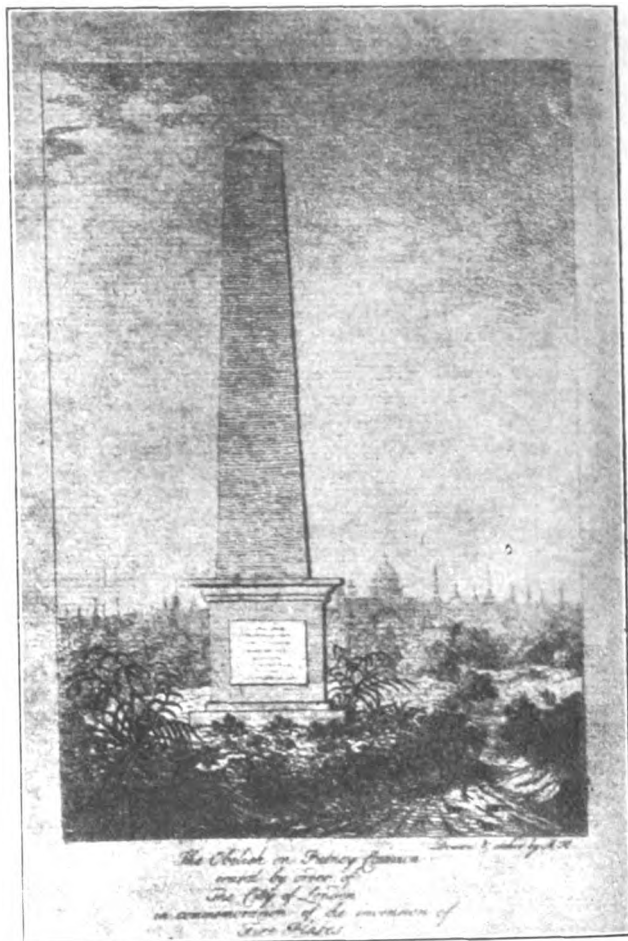
21. SUFFOLK AMICABLE AND/OR SUFFOLK AND COUNTIES.—Little known concerning this office. One specimen only extant. (In the possession of the pioneer collector, Mr. Bain, of Sunderland.)  
22. YORK AND NORTH OF ENGLAND.—Established 1834. Transferred to Imperial in 1844. Very scarce variant. Copper. (Tufnell collection.)

The old battered "National" is worthy of notice (not much left of it); "Economic Kent," too, will be of much interest.

Beginners who hesitate to spend several pounds on a sign had better secure a few ordinary ones when they

can, and afterwards perhaps fortune may smile on them in giving opportunity for further acquisitions.

A brief word of warning, too, may be found useful. Let the collector take care he is not "landed" with any property, parish, boundary, or Livery Company's signs. Many of these are sought for, but the acquisition in no way equals in extent the demand of the fire-mark coterie, with its large private element, insurance circles,



curators, and many other classes who are on the look out for unexpected bargains, which many of them work very hard to obtain.

#### NAMES OF PRIMARY FIRE OFFICES.

- 1667. Dr. Barbone's office, in 1880 merged Fire Office.
- 1680. Fire Office, became Phoenix No. 1.
- 1681. City of London, in 1862 discontinued.
- 1683. Friendly Society.
- 1696. Amicable contributionship became "Hand in Hand."
- 1704. Lombard House fire—fate uncertain.
- 1709. Company of London insurers. Sun now existing.

#### THE VICTORIA AND ALBERT MUSEUM.

The report by Sir Cecil H. Smith, Director and Secretary of the Victoria and Albert Museum for the year 1915, has now appeared. From it we take the following:—

##### REARRANGEMENT OF THE COLLECTIONS.

In the Department of Architecture and Sculpture a collection of English nineteenth century sculpture was arranged in February in the North Court with the Sheepshanks pictures, until the Court was required towards the end of June for the National Competition. The bronzes given by M. Auguste Rodin were temporarily removed from the West Hall, with the sculptor's consent, for exhibition on loan at Edinburgh during the summer months; they have since been returned and replaced. During their absence a loan exhibition of sculpture by the Serbian artist, M. Ivan Mestrovic, was

arranged in the West Hall and the Central Court, and attracted much attention.

A number of architectural details have been exhibited for the first time on the screens in Rooms 62 and 64, and in the East Hall. A collection of English Romanesque sculptured details from Westminster Hall, lent by the Office of Works, has been exhibited in Room 8. Other loans from the Office of Works were six lead cisterns and six lead pipe-heads; two doors from Hampton Court Palace and two from Kensington Palace; and a marble chimney-piece of the middle of eighteenth century, from No. 34 Spring Gardens.

A considerable number of objects have been moved from the upper floors to positions of greater safety on the ground and basement floors, with a view to protection against air-raids, and other measures of precaution have been taken in regard to objects which could not be moved.

In the Department of Ceramics the specially valuable or fragile objects have been removed from exhibition in the upper galleries and stored in places of security. Similarly, the loans were removed from the Loan Court and exhibited in Room 7, on the lower ground floor, with the exception of the collection of English and other porcelain lent by Mr. Herbert Allen, which is exhibited in Room 135.

In the library a certain amount of rearrangement became necessary in consequence of the accession of the Alma Tadema Library. This library, presented by the Alma Tadema Memorial Committee on behalf of a body of subscribers, is intended as a permanent memorial to the late Sir L. Alma Tadema, O.M., R.A., and is now arranged in the two south-western bays of the west room (No. 76). In the centre of the two bays is placed a marble bust of the artist by E. Onslow Ford, R.A., presented by the Misses Tadema.

The Memorial Library was formally opened for the use of the public on Wednesday, November 24. Her Royal Highness Princess Louise, Duchess of Argyll, at the request of Sir E. J. Poynter, P.R.A., and on behalf of the subscribers (about one hundred of whom were present) offered the library to the Board of Education. It was accepted on their behalf by Earl Curzon of Kedleston. There is a collection of 2,007 drawings, sketches, tracings, engravings, &c., by Sir L. Alma Tadema, E. A. Abbey, R.A., and other artists.

In the Book Production Gallery (Room 74) an exhibition was arranged of works showing the development of book-illustration from the invention of super-imposed colour-printing in the early eighteenth century, down to the era of the photo-mechanical processes. At the eastern end of this gallery a number of large photographs of important paintings of the Netherlandish Schools, which belong to churches and picture galleries in Belgium, have been placed on exhibition.

In the Department of Metalwork further progress has been made towards the final arrangement of the many groups comprised in the collections of this Department. The French silver of the eighteenth century has been brought together, and affords some idea, though still inadequate, of the skilful workmanship and rich design of that period. The re-arrangement of the Japanese suits of armour which was begun in 1914 has been completed, and these objects are now displayed as nearly as possible in the manner adopted by the Japanese themselves. An appropriate setting has been provided by covering the floor of the cases with matting, and certain of the swords and other weapons have been supplied with stands of the type favoured in the country of their origin. To illustrate the varieties of dyed leather frequently used in the decoration of the armour, a group of specimens of this material has been assembled and placed on exhibition close at hand.

In view of the possibility of attack by hostile aircraft the most important and valuable objects in the Department have been entirely withdrawn from exhibition and moved to places of safety; other objects, while still exhibited, are arranged in places of greater security.

Thus, of the originals exhibited in the South Court, some have been put away and others have been removed to the adjoining cloisters, their places being taken by the electro-types which were formerly exhibited there; and the valuable loan collections of silver exhibited in the Octagon Court have been removed, partly to an adjoining gallery and partly to Room 7 on the lower ground floor.

In the Department of Paintings the Sheepshanks Galleries (Rooms 95-99) and the Raphael Cartoon Gallery (Room 94) were closed, the former in consequence of the structural alterations in progress, and the latter in consequence of the need for protecting the Cartoons against the possibility of attacks by hostile aircraft: the water-colour galleries (Rooms 81, 82, 87, 88, and 90) remained open all the year. The main collection of oil paintings, which had been removed from the Sheepshanks Galleries in December 1914, was exhibited in the North Court from February 15 to June 25, when it was withdrawn from exhibition in order to make room for the exhibition of the National Competition.

Mr. Huon A. Matear, F.R.I.B.A., presented his original design (two sheets) for the Cotton Exchange, Liverpool, and his original design for the Church of the Holy Trinity, Southport, Lancs. Amongst the purchases were a series of drawings (180) of mural decoration, principally of the twelfth to fourteenth centuries, from various cathedrals and churches of England, by E. W. Tristram (£310 10s.), and seven drawings of thirteenth-century stained glass from the Jerusalem Chamber, Westminster Abbey, by Stanley H. North.

In the Department of Textiles during the early part of the year, the numerous articles of costume included in the Harrods' gift which had been exhibited in the Central Court since their accession in 1913, were moved to the Long Gallery (Room 114) on the first floor. The whole collection of English costumes is now placed together in chronological order, but owing to the reduced numbers of the staff it has not been possible to complete its arrangement. Considerable progress has, however, been made with this work. The six fine English seventeenth-century embroidered panels from Hatton Garden have been moved from Room 119, and are now displayed to much greater advantage on the staircase to the west of the entrance hall. The collection of ecclesiastical vestments has been re-arranged.

In the Department of Woodwork a considerable number of valuable specimens, including the whole of the furniture of the Jones Collection, have been withdrawn from exhibition, and other examples have been moved to positions of greater safety than those which they ordinarily occupy. At the beginning of the year some progress was made in the preparation of Rooms 65 to 69 (the Old Ceramic Gallery) for the exhibition of the Jones Collection, but the completion of the model rooms has been suspended owing to lack of funds.

In the Indian Section further progress has been made in the deciphering of inscriptions, in the re-arrangement of the Jain and other sculptures in Room 3, and in the development of the collection of paintings in Room 4. Important progress is also to be recorded in the task of renovating fifty-one of the large oil and tempera copies, on canvas, of the Buddhist Caves frescoes of Ajanta, damaged during the fire which took place at the International Inventions Exhibition, 1885.

In August the experiment was made of providing holiday instruction for the more youthful visitors to the museum, whose numbers, owing to the shortage of the ordinary country holiday funds, were likely to be larger than usual. Help was afforded by Miss E. M. Spiller, the Honorary Secretary of the Art Teachers' Guild, and other ladies, and a small room was placed at their disposal, in which to give the children elementary instruction about objects in the museum.

The experiment having proved successful, arrangements were made to extend the scheme in the Christmas holidays. A large room on the ground floor, adjoining Room 18, was set apart for the special exhibition of various objects considered likely to appeal to children of



both sexes and at the same time provide material for simple talks on art and history. Miss Spiller, and other members of the Art Teachers' Guild, again offered their services as guides, and besides explaining the objects in the room, took parties round the Museum, selecting for discussion such works of art as were likely to interest and stimulate the imagination of the children. Demonstrations of spinning and weaving and elementary instruction in the stencilling and block printing of textiles were also arranged in the classroom of the Department of Textiles.

The exhibition included various museum objects having reference to war and fighting, English dolls' houses of the eighteenth and nineteenth centuries, a series of dolls illustrating English costume from the eleventh to the nineteenth centuries, and a model of a Japanese palace building with figures of the Emperor and Empress and various courtiers, graciously lent by her Royal Highness Princess Mary (see below). It was opened on December 26, 1915, and closed on January 23, 1916. During the time that the exhibition was open the room was visited by over 14,000 people, chiefly children.

*Decoration and Reconstruction of Buildings.*—The only important services to be noted under this heading are the completion of the reconstruction of the roofs of the Sheepshanks Galleries, which was begun in 1914, and the completion of the painting of the Ceramic Galleries on the second floor. All other works were suspended for reasons of economy.

*Purchases.*—As from April 1, 1915, the annual grant for the purchase of objects has been suspended.

*Gifts, Bequests, Loans.*—An account of the gifts, bequests, and loans received during the year, some of which were of great importance, will be found in the Review of Principal Acquisitions, which is published separately. Included among the loans are twenty-two canopy panels and durbar mats of embroidered velvet of the eighteenth century from Delhi and Seringapatam, graciously lent by their Majesties the King and Queen, and a set of Japanese models of the kind displayed annually in the houses of distinguished Japanese families in connection with the Feast of Dolls (*Hina Matsuri*) or Girls' Festival. These were graciously lent by H.R.H. Princess Mary.

*Administration.*—Assistance was given by the Museum to the Board of Trade in connection with the exhibition of German and Austrian commercial art organised at the Goldsmiths' Hall in March with a view to bringing to the notice of English manufacturers some of the more recent and successful products of the artistic trades of Germany and Austria. The final selection of the objects to be displayed was made by a small committee of Museum officers and others interested in industrial design, and the collections were arranged for exhibition under their direction. Help was also rendered in the production of an explanatory pamphlet to accompany the invitation card to manufacturers; and leaflets were written by Museum officers on the subsections of Ceramics, Lithography, Metalwork, Textiles, and Typography. The Museum also co-operated with the Board of Trade in connection with the section of Designs at the British Industries Fair at the Agricultural Hall in April.

The arrangements for closing the Museum at dusk daily, which were made in 1914 in compliance with the general order for the restriction of lighting, were continued during the spring and autumn months of the year now under review. In the summer the hour for closing was 6 P.M. daily.

In view of possible attack by hostile aircraft, measures have been taken for the due preservation of the collections in consultation with representatives of the Admiralty and of the Home Office.

One hundred and sixteen members of the staff have joined his Majesty's Forces, and seventy-six others have volunteered.

*Visitors and Students.*—The total number of visitors to the Museum, including the Indian Section, in 1915 was 496,069 on weekdays, and 78,508 on Sundays,

giving a total of 574,577. In 1914 the total number was 563,848, of whom 79,353 attended on Sundays.

There is thus an increase of 10,729 over the total attendances in 1914, an increase which appears of greater significance when it is recalled that for eight months in that year the Museum was open in the evenings (till 10 P.M.) on three days in the week, but in the year under review was closed every day at dusk or 6 P.M. The large number of attendances in July and August was no doubt partly due to the great public interest taken in the exhibition of the works by the Serbian sculptor Mestrovic. It is interesting to note that the average attendance for these two months was considerably higher than that made in May and June in 1914, and not much lower than in 1912, in each of which years the public were also attracted by exhibitions of special interest during the months mentioned.

The number of visitors conducted round the Museum by the Official Guide during 1915 was 6,013; 801 of these came in fifty-three special parties. In 1914 the number amounted to 6,737, of whom 407 came in thirty-six special parties.

In the Woodwork Galleries the number of students working has been only slightly reduced. Irrespective of the classes from the Royal College of Art, Architectural Association, and L.C.C. Schools, the numbers of which have been somewhat below the normal, about 200 students applied for tickets of special facilities to work in this department.

## ENGLAND NO LONGER AN ISLAND.

By CLAUDE GAUDET.

It is always unprofitable to regret opportunities lost, but to realise that those opportunities once presented themselves, and in all probability will present themselves in the future, should stimulate to the speediest possible action when once again they stand upon the threshold.

There are many advantages still to be gained, late in the day though it may be, by the construction of the Channel Tunnel, and the objections raised by the timid since the subject was first proposed, now more than a hundred years ago, no longer exist. Investigations of the Channel bed have proved the presence of grey chalk, impervious to water, extending the entire length of the twenty-two miles from Dover to Sangatte, and this being at a convenient depth would form a favourable stratum wherein to construct the tunnel. First, a trial tube of about eleven feet in diameter would be run in the chalk, which would test the ground and enable the detection of any fissures or flaws which might be present. This tube would later serve to drain the main tunnel; it would rise towards the centre half-way between France and England in order that the water might flow downwards at each end and be pumped up to the surface.

The main tunnel would consist of two tubes, each about eighteen feet in diameter, one for the up and one for the down traffic.

These tubes would run parallel with each other close together, and connected at frequent intervals to enable trains from one tunnel to be transferred to the other in the event of a break-down.

The trial tube, which would take four years to construct, would greatly lessen the time required for the boring and completion of the main tunnel, which would only require another four years, as the first would act as a service tube, carrying away the debris and bringing up the necessary materials as boring and construction proceeded.

Within eight years, if operations were started now, through trains could be run every half-hour between London and Paris.

The entrances to the tunnel would be under the control of the forts of Dover and Calais, probably some miles inland and perhaps placed actually in a fort. These are details which would have to be settled by the military authorities.

The trains would be worked by electricity, and it would be merely the matter of a few minutes to exchange the electric motors for steam locomotives when the trains emerge from the tunnel, but the actual carriages could run right through, as the first railways in France were built by English contractors who established the English gauge, which has consequently always remained, and although French carriages are wider and taller than ours, and could not run in England owing to the construction of our stations and our low bridges, yet our English carriages could perfectly well run right through to France.

To satisfy our military authorities the French long ago agreed that the sole power station should be at Dover, and the tunnel traffic entirely under our control.

The Customs examination would take place at the two termini.

The cost was estimated (two years ago) at £16,000,000, to be raised over a period of about six or eight years, one-half to be borne by England and the other half by France.

The advantages to trade and commerce would be inestimable.

It appears that before the war many of our machinery manufacturers were unable to compete in Continental markets owing to the expense of packing for Channel transshipment, whereas, if car-loads of machinery could be run direct from the manufactory to their destination they would have access to markets hitherto closed to them. This should be borne well in mind by those who to-day are arming for the "next war": the Great Trade War.

To mention the facility with which the present war transports would have been effected without risk from mines or submarines would be to indulge in profitless regrets, and at the same time to rob our magnificent Navy of the deep debt of gratitude which we owe to it for its unceasing vigilance.

In the event of the tunnel being built should it at any time be found necessary to close it this could be done by flooding it for one mile in length only; but, in the face of our present relations with France, such a contingency indeed seems remote.

The means for flooding could be provided in the construction by making a pocket, or trap, a mile in length at both ends of the tube, which in an emergency could be filled with water by either country.

The question also of ventilation would be one of the very simplest, far simpler than the ventilation of mines, where enormous quantities of air have to be supplied in order to dilute the volume of the explosive gases. Here, no combustion is to be feared, and there would be no gases to dilute owing to the innocuous nature of the chalk. The provision of fresh air for the passengers would be the only problem. It appears that even our tubes in London are far more complex to ventilate than the Channel Tunnel would be, owing to the confusion of currents caused by the underground stations.

Military opposition to the construction of the tunnel since the late Lord Wolseley first opposed it, now thirty-seven years ago, is apparently the only reason why we are not now enjoying the enormous advantages which such an easy means of communication with the Continent would afford. But this opposition no longer prevails.

Shortly we shall be celebrating the centenary of our peace with France, a peace which has now been consummated by a sacrament of blood, instituted on her stricken, erstwhile fertile plains, in the midst of Armageddon.

THE Lords Commissioners of the Treasury have appointed Mr. James D. Milner, clerk and acting assistant keeper of the National Portrait Gallery, to be director, keeper, and secretary of the National Portrait Gallery in succession to Mr. C. J. Holmes, who has been appointed to be director of the National Gallery. Their Lordships have appointed Mr. Robert Clermont Witt, F.S.A., hon. secretary of the National Art Collection Fund, to be trustee of the National Gallery.

## BUSINESS OVERSEAS.

By ARTHUR VYE-PARMINTER.

WE are all hoping and expecting to help our French and Belgian Allies after the termination of hostilities with the reconstruction of their devastated towns and villages, either by means of capital, materials, or personal aid and undertakings.

But have we yet carefully thought out what we intend to do, and how we intend to do what we would wish to do? As one who knows both France and Belgium well and has long done professional business in both countries, I am in a position to criticise our ways of doing business, when such business extends to another country than our own. To criticise is not to condemn, but merely to bring our little defects more home to us in our own interest, and one who has practised for some time out of England is able to notice these little defects, not apparent to one who remains in England. I speak of course only of those connected with the building business and not of other business men and merchants.

In my opinion one of our little defects is a want of entering sufficiently into details. In our work at home we go along on our own usual methods, and possibly after a few little mishaps, due perhaps to a want of attention to details, bring our work to a satisfactory end. But when we try to do building business in another country we find ourselves very much at sea for the want of getting at the details which would be of the greatest use to us, and therefore as a rule finish up in a manner which is not satisfactory to ourselves or others.

Let us start from the office boy whose duty it is to post the letters to the expected foreign client, or to the man we wish to do business with. He insists on affixing a penny stamp on all letters whether destined for abroad or not. The little detail of foreign postage does not occur to him, with the result that the hoped for client is annoyed, not once but often, at having to pay an overcharge on the letter, which may be anything from threepence to a few francs, depending on whether the letter is a simple one or a bulky sealed package containing prospectus or catalogue "for your kind perusal." The first effect produced is therefore not quite a good one. This nuisance of understamped letters sent from England to France has become so great and has caused so much petty annoyance, that the British Chamber of Commerce at Paris issued a special notice calling the attention of British correspondents to the fact, and asking them to remember that the cost of foreign postage was not the same as inland postage. Several thousand pounds annually must come out of the pockets of the French addressees in overcharge on insufficiently stamped letters sent from England. A little thought of detail would avoid this nuisance, which although comparatively small deserves more attention.

Taking next the correspondence, I know from personal experience and from remarks made by my French business friends that it is very difficult to obtain a really satisfactory reply in the first place from England to enquiries sent to demands for information, or for information on certain subjects. The reply in most cases just omits the point which would have made it useful, or through a too hurried reading of the inquiry just misses the information required, or leaves out one little detail which would have made the reply clear. Something is missing or not quite clear, and another letter has to be sent making delay, loss of time, and perhaps loss of the prospective business.

Next let us consider our building contractor, or the merchant and supplier of materials and articles for the building trades, both of whom wish to do some business in France. I have known or heard of many of these cases, generally after there has been some trouble of one kind or another. The contractor who has been invited to tender for what appears to be a very interesting job

I hope the above little criticism will be taken in good part, for it is made in the interests of our builders and tradesmen, who I really hope will have much work to do over here and in Belgium after peace is declared.

THE first complete year of war naturally shows a reduction in the number of visitors to the museum at Bloomsbury as compared with the exceptionally high figures of 1913 and the first seven months of 1914. The absence of Continental and American visitors and of holiday tourists in general was bound to make itself evident in these returns. On the other hand, according to the annual report, the use of the museum by our own people has been more than fully maintained. The total number of visits for the year 1915 was 733,091 (680,000 on week-days and 53,091 on Sundays), which is a figure slightly in advance of the total for 1911, and slightly below those for 1910 and 1912, all of which were years

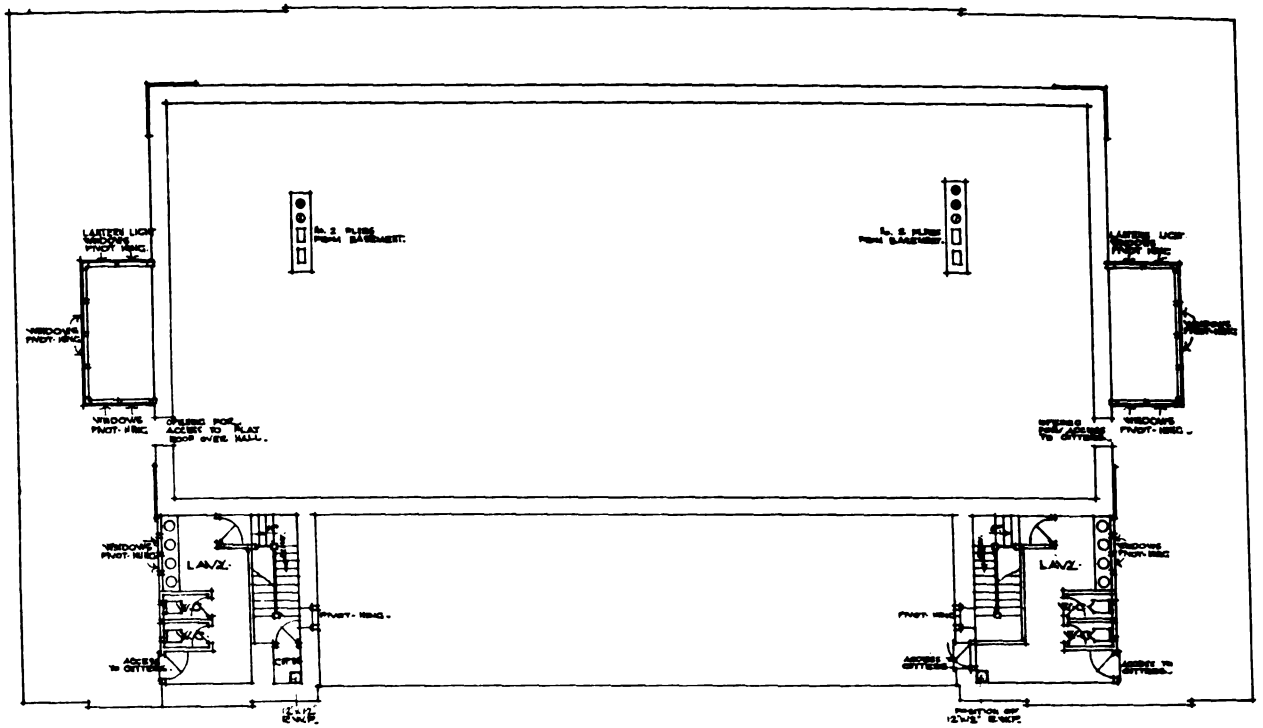
The suspension of the purchase-grant (with the exception of a sum devoted to the purchase of foreign books and periodicals for the Library) has greatly affected the accessions, though the full falling-off will not be visible until the next year, since the suspension did not come into effect until April 1915, and several outstanding purchases were completed by means of the reserve accumulated in times of peace. The number of separate objects incorporated in the collections of the several departments during the year 1915 is as follows:—

Total	.	.	.	.	399,685
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The principal acquisitions are indicated in the departmental reports, though these reports are given on a less

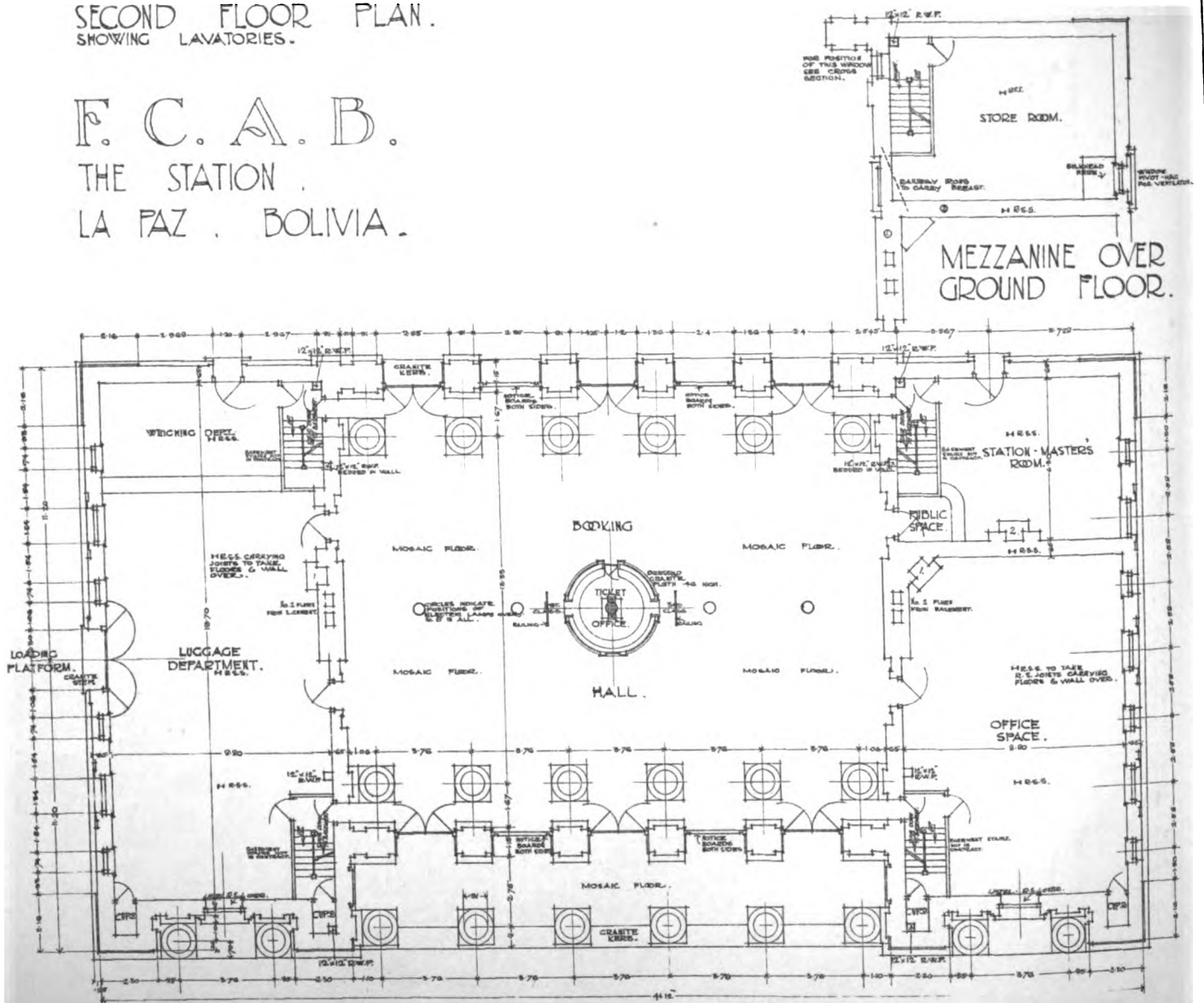






SECOND FLOOR PLAN.  
SHOWING LAVATORIES.

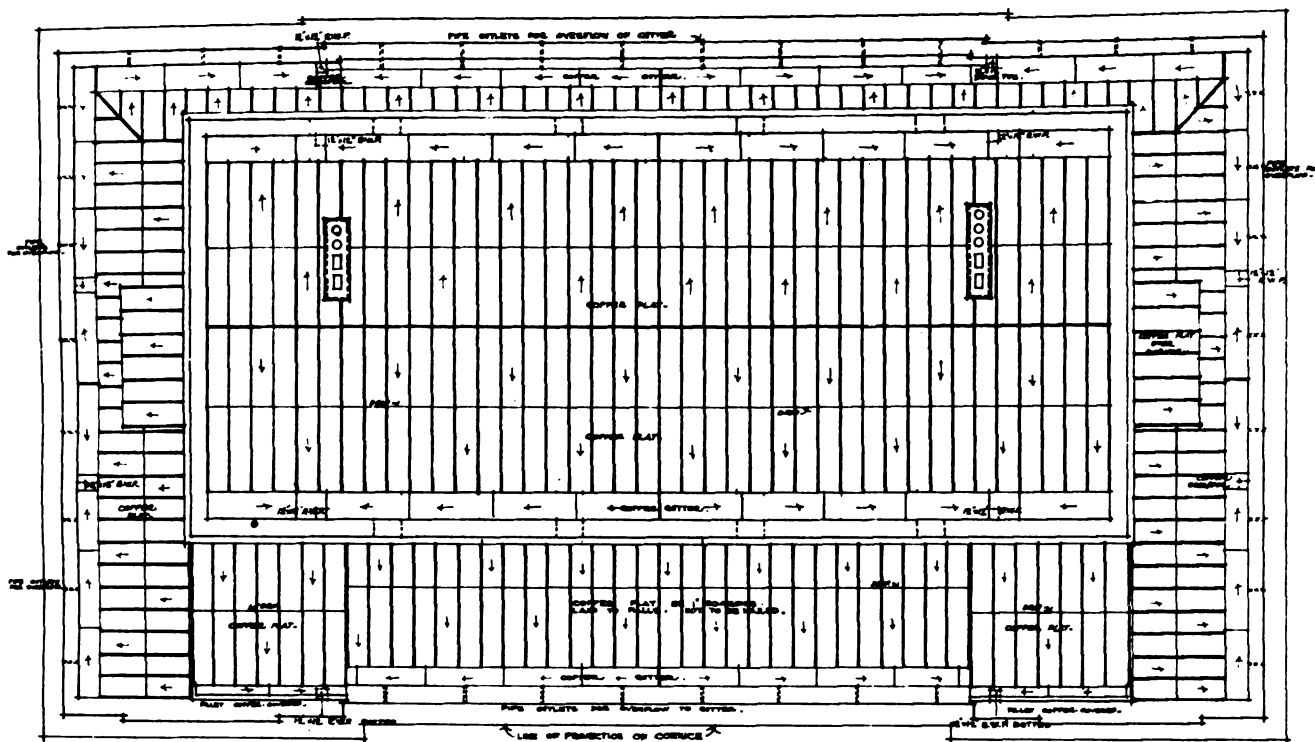
F. C. A. B.  
THE STATION.  
LA PAZ, BOLIVIA.



GROUND FLOOR PLAN.

SCALE 1/8" = 1'-0"

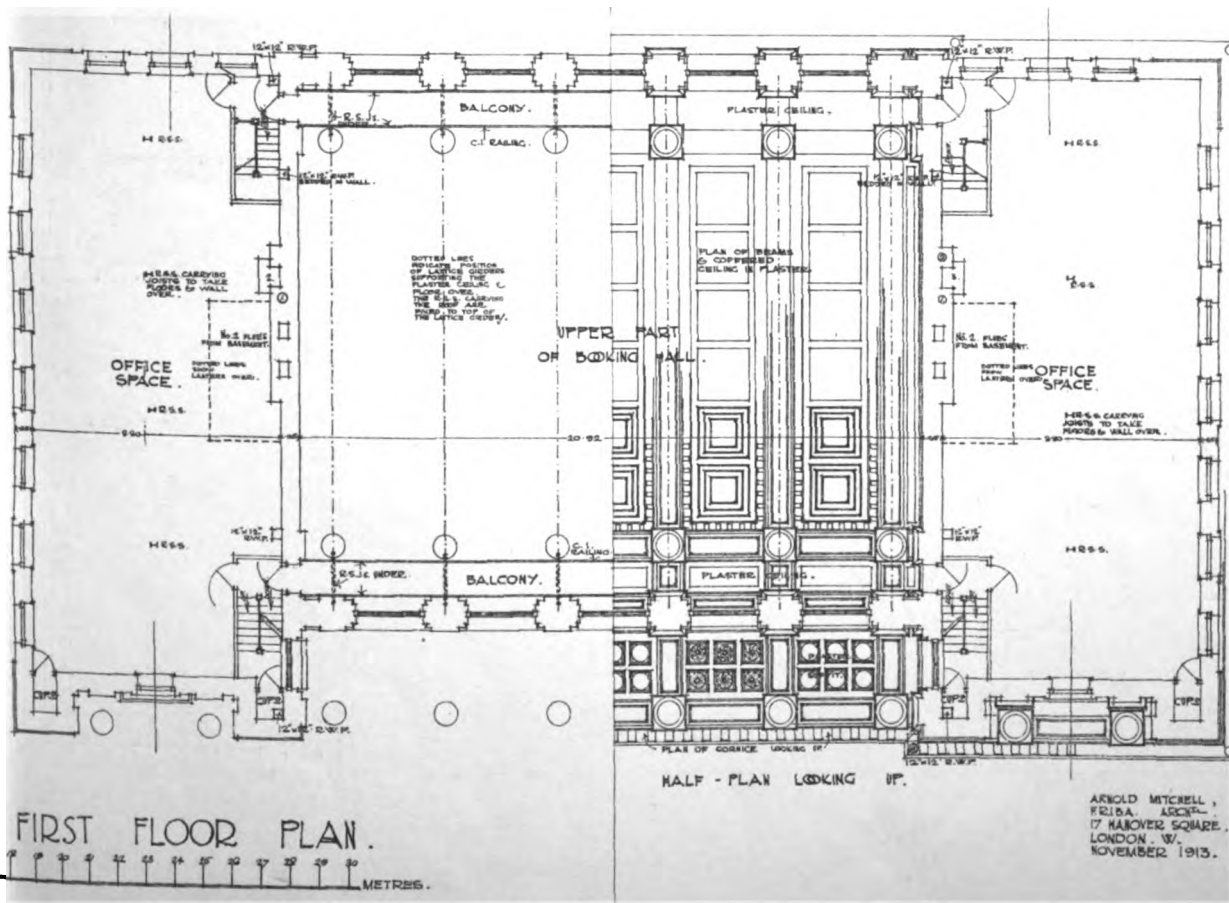
Aug. 11th 1916



ROOF PLAN.

**BASEMENT PLAN -**

**BASEMENT PLAN -**  
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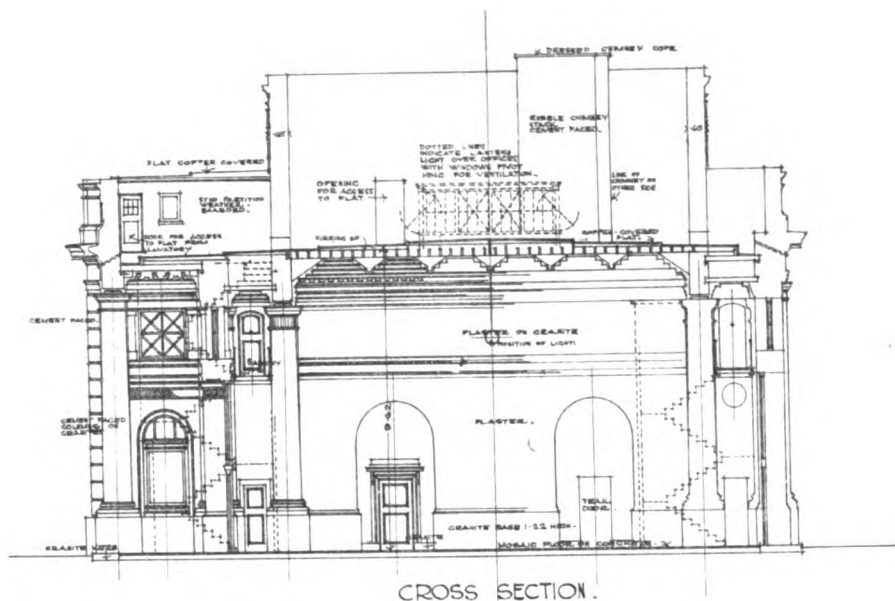
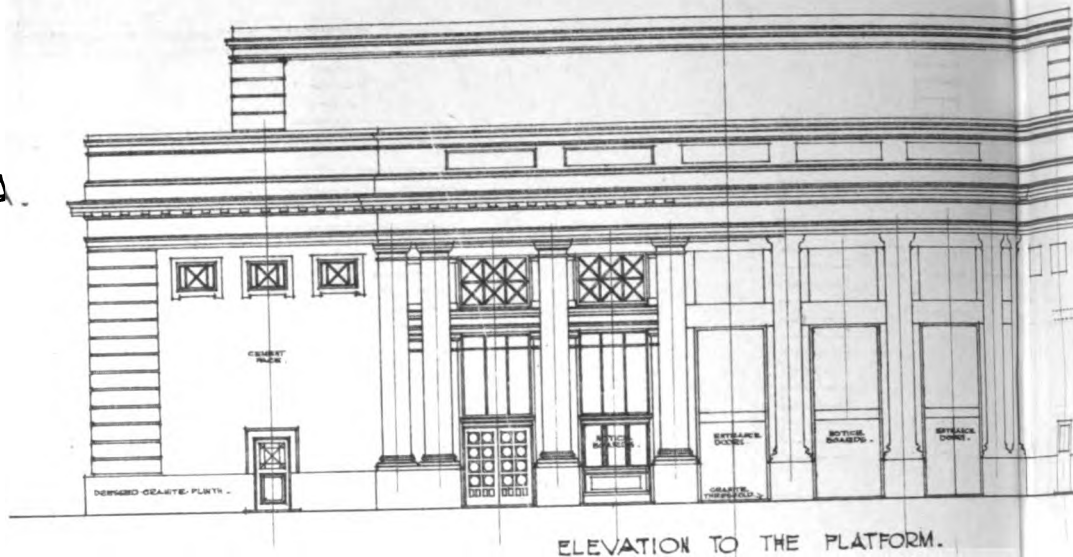






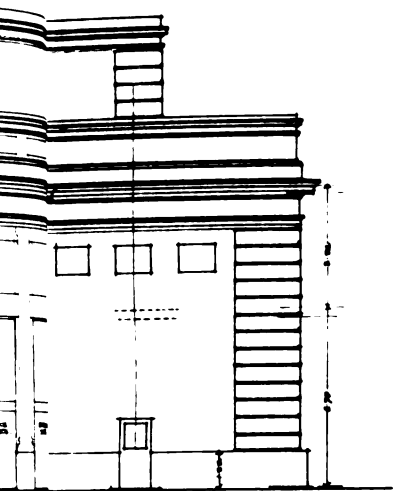


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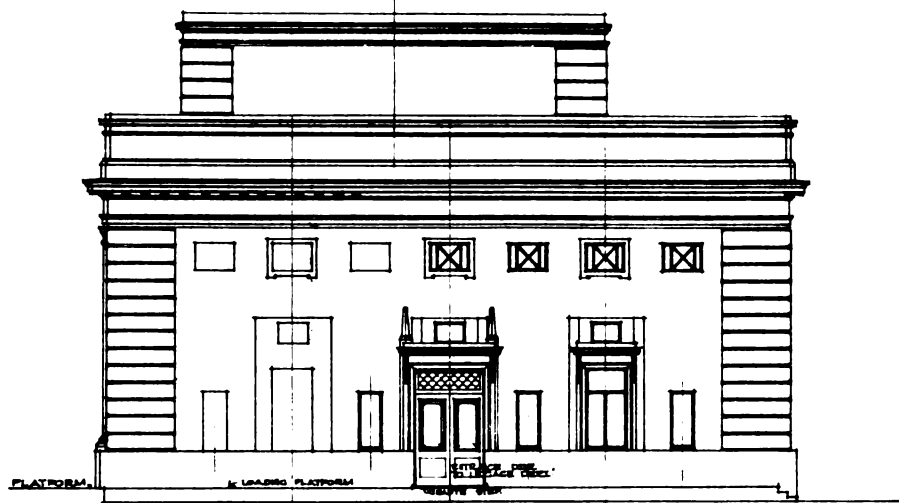




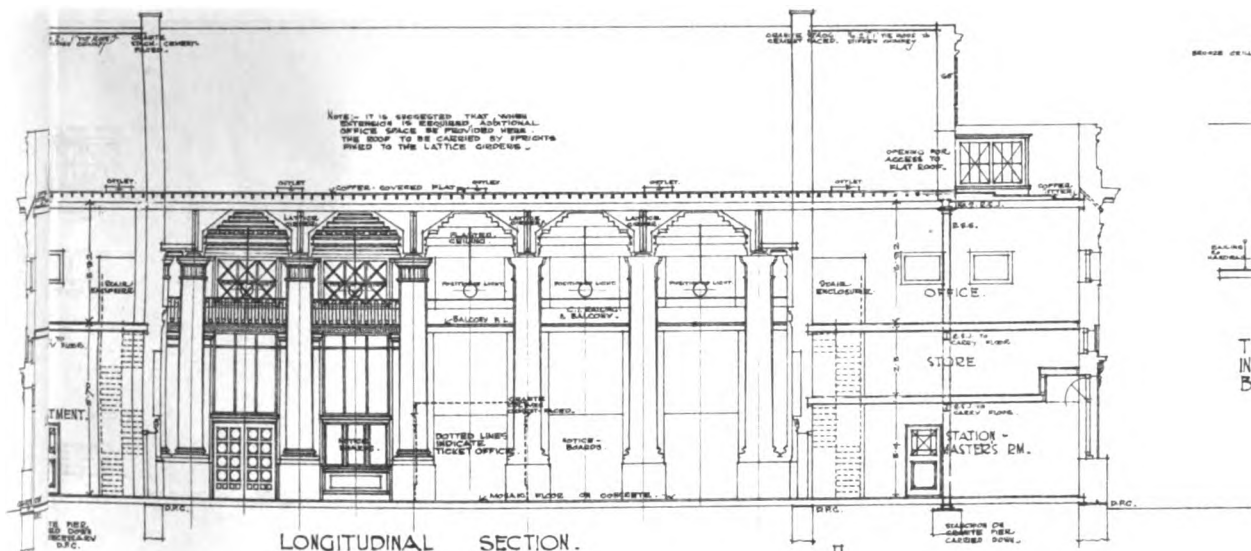
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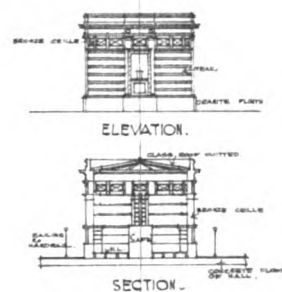
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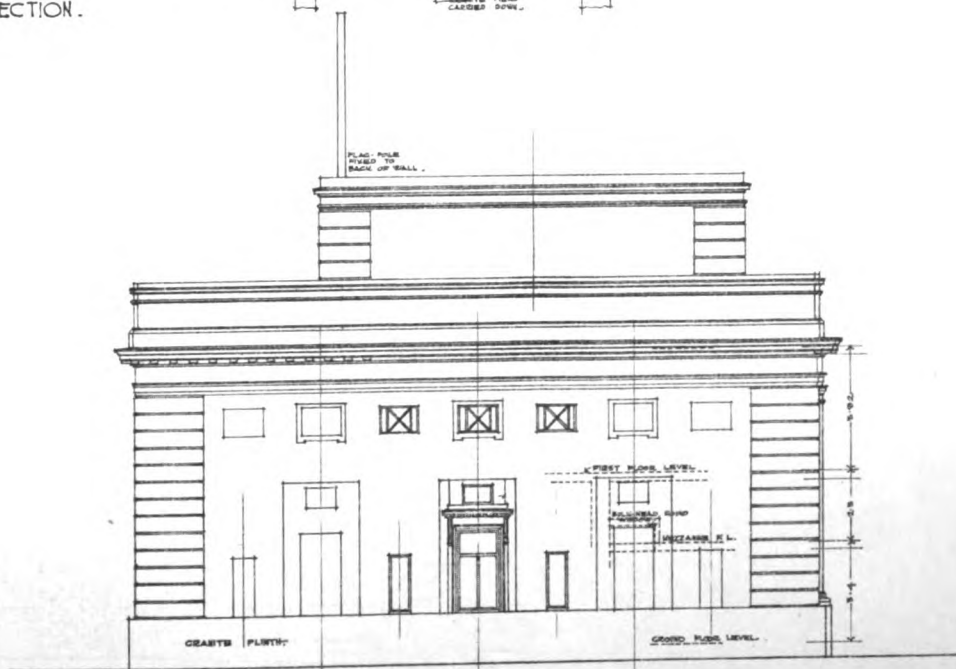
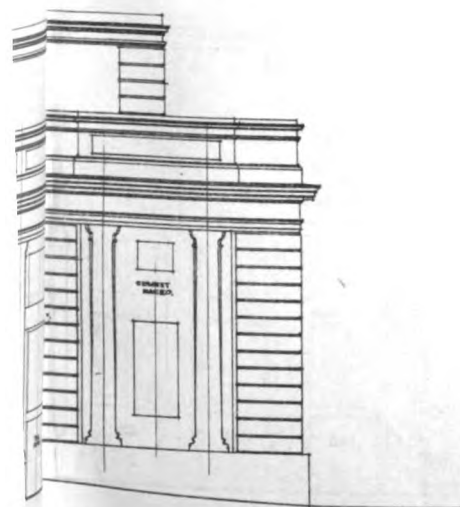
SIDE ELEVATION.



LONGITUDINAL SECTION.



TICKET OFFICE IN CENTRE OF BOOKING HALL.



SIDE ELEVATION.

ARNOLD MITCHELL  
17 MAJORS RD.  
LONDON, W.  
NOVEMBER 1913.

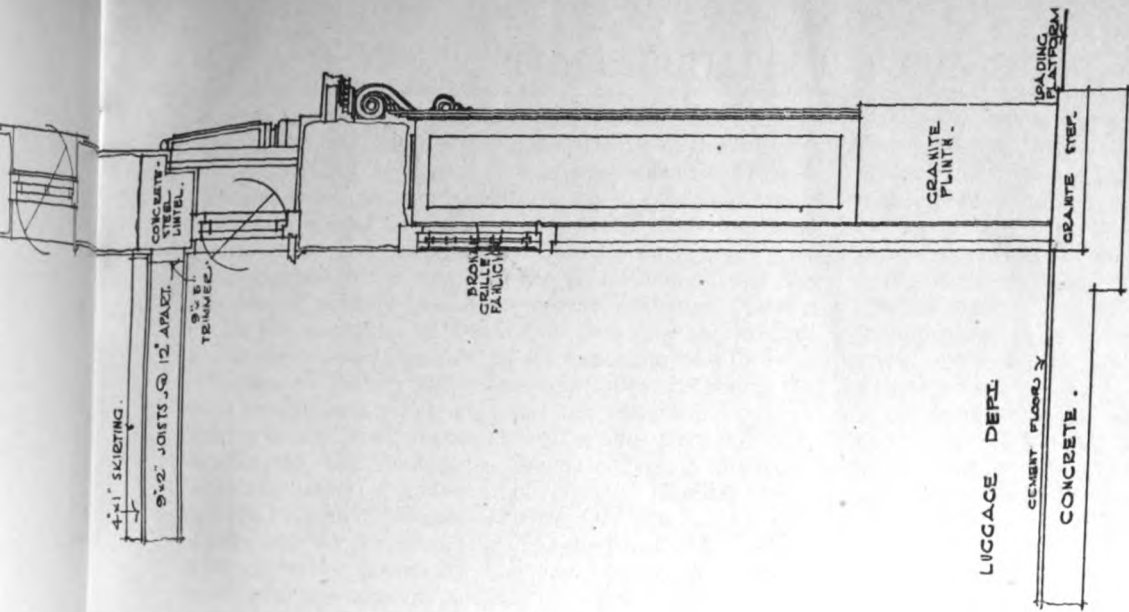




F.C.A.B.  
THE STATION.  
LA PAZ - BOLIVIA.  
SCALE 1:25 DETAILS.

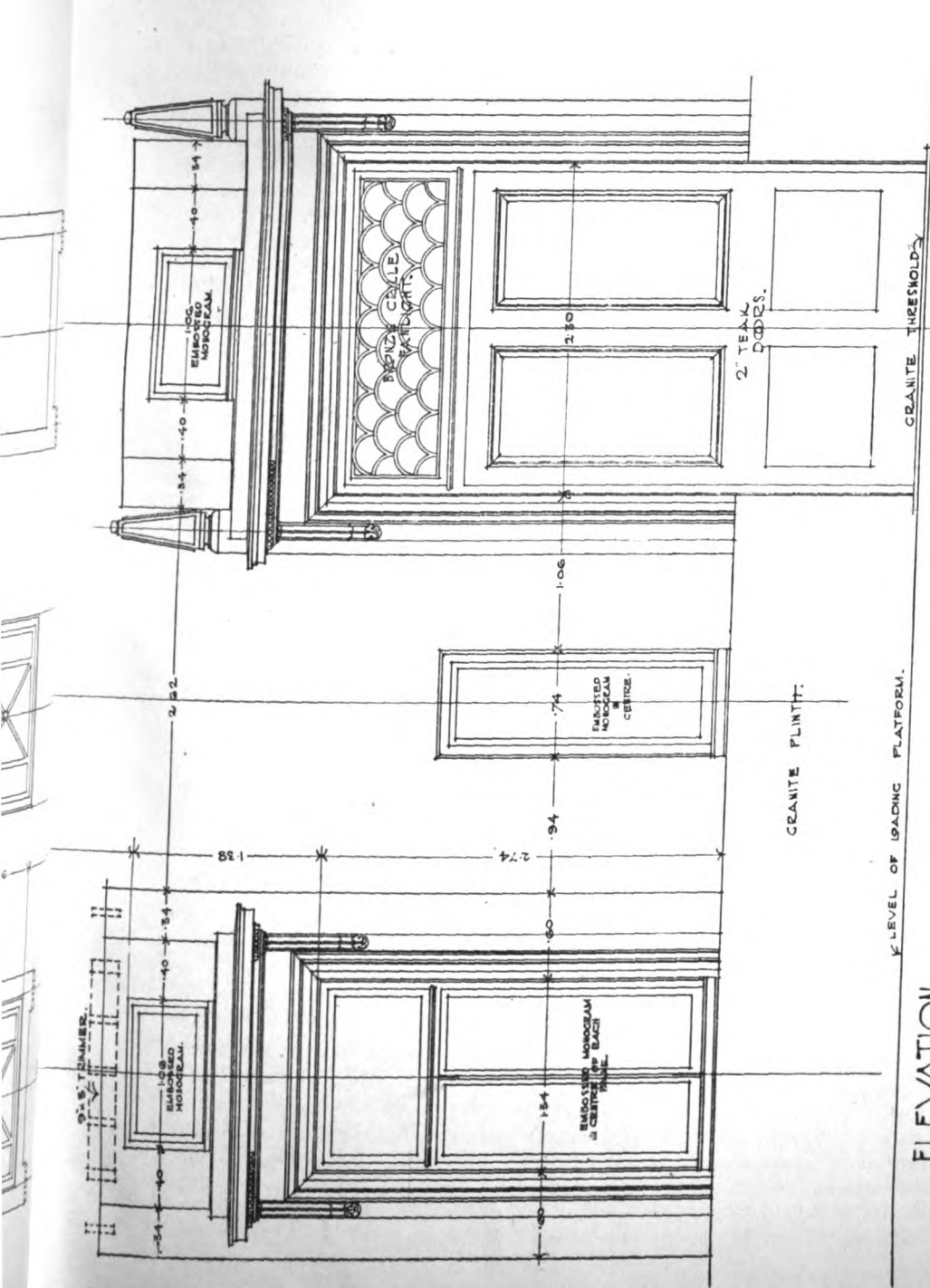




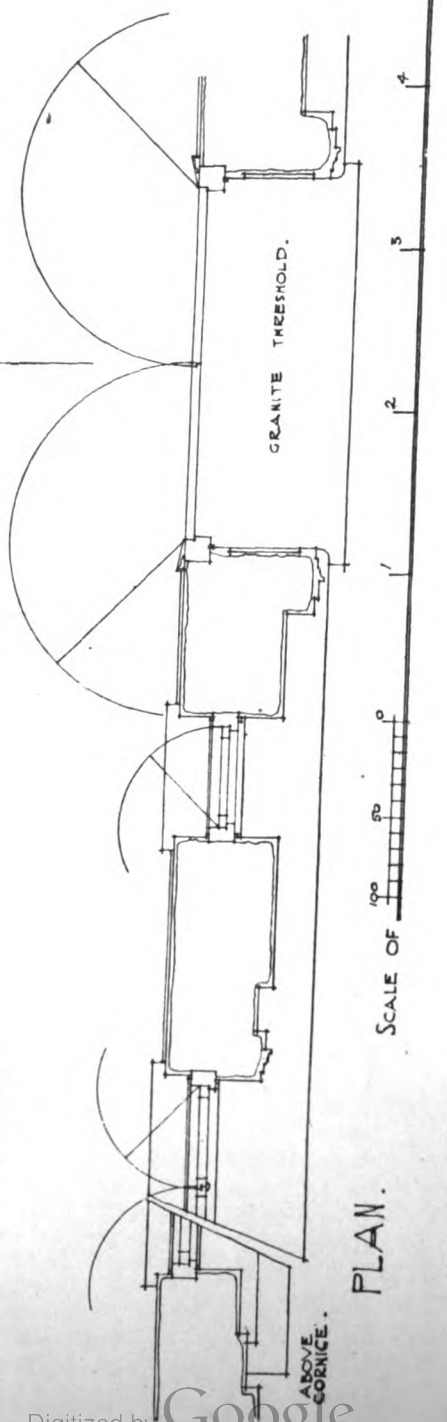


SECTION.

ARNOLD MITCHELL,  
R.E.S.A. ARCHT.,  
17 MANOVER SQUARE,  
LONDON W.  
DECEMBER. 1915.



ELEVATION.



PLAN.

SCALE OF 1" = 6 METRES.

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extensive scale than usual, in the interests of economy. Special recognition is given to the friends of the museum whose liberality, in several instances, enabled the Trustees to take advantage of opportunities which otherwise would have been missed through the suspension of the purchase grant. Five collections of considerable importance have been acquired in the course of the year—namely, the Sale bequest of seventy-five water-colour drawings (notable for its fine examples of David Cox, but very comprehensive in other directions also); a selection from the Ransom collection of British and other antiquities, in which the most conspicuous single object is the remarkable twelfth century bronze bowl, engraved with scenes from the life of St. Thomas; the Whitcombe Greene collection of renaissance plaquettes; the Evans collection of English coins; and the Prideaux collection of Oriental coins. Of single objects, special attention may be called to the autograph MSS. of several poems by A. C. Swinburne; to a Dürer drawing of peculiar importance; to two early German woodcuts from the Leigh Sotheby collection; to the clay cylinders of Sennacherib and Esarhaddon; to the royal guitar of Uganda, formerly presented by Sir F. Lugard to Mr. Joseph Chamberlain; and to a number of rare coins.

The Parliamentary grant for the issue of reproductions of works of art to art schools and similar institutions has been suspended for the period of the war.

Two pencil architectural drawings by Mr. R. Norman Shaw, R.A. (presented by Mrs. Norman Shaw), have been added to the Department of Prints and Drawings, as well as twenty-four etchings of architecture and landscape, including the etchings of the earthquake at Messina and others of Mr. Frank Brangwyn's chief works which were presented by the artist. Mr. Muirhead Bone presented two etchings—viz., "Piccadilly Circus, 1915," and "Orvieto." Of Mr. W. Walcot's skill there are four examples, including "Baths of Caracalla" and "Palazzo Pesaro." A very extensive collection illustrating the life and work of Frederick Walker, A.R.A., consisting of woodcuts, etchings, photographs from pictures and drawings, &c., arranged in chronological order, mounted on cards in two Solander volumes, and accompanied by copious notes and documents.

The year has been marked by the acquisition of a large selection of English coins from the collection made by the late Sir John Evans. Taken as a whole this is the most important addition to the English series that has been made since the purchase of the Roberts Collection in 1810. Among the pieces of outstanding interest may be mentioned the following: A gold penny of Henry III., one of six specimens now existing of the first gold coinage of England which was ordered by Henry III. in 1257; a set of the florin, half-florin, and quarter-florin of Edward III. (only one other complete set is at present known of this first attempt of Edward III. to establish a gold coinage); also a fine specimen of the very rare first noble of the same reign.

### THE ARCHITECT'S OPPORTUNITY.

In the past the idea has held that in an abundance of money lay the architect's best opportunity for coming to the front and producing architecture of the finest quality. When the client had money, and enough to spare, he went to his architect and ordered a mansion that was to reflect his wealth and importance, the mansion was produced and gave satisfaction according as its designer had interpreted the client's wish to make it resplendent above that of his neighbours. It was the designer's opportunity in the sense that it enabled him to design without stint, to elaborate to the fullest extent of his desire, to produce something that must attract, no matter what form the attraction took. The client may have been a parvenu, in which case it would be difficult for the architect to keep out of his design some at least of the vulgarity dear to the heart of the parvenu. If he were a person above vulgarity

he would expect his architect at least to be unsparing in the details which commonly constitute ornament in design. If it were a public body or a Government department there would at least be the encouragement to be over generous with space, with height of façade, with size of door and window; and the architect would feel it impossible to deal with such work on a large scale without adding elaboration in proportion to the scale. In any case the tendency to free spending on building would create the tendency to free use of ornament, since ornament is so handy a thing for covering up bad design or ill proportion. This has truly been the source of much bad architecture; it may even be put down as one of the causes of present day degeneracy; and for examples we need not go further than India.

But how about the reverse of the picture? What should be the effect on design of a serious restriction of funds for building purposes? We take up the Annual Report on Architectural Work in India and looking over its illustrations, page after page, note how little the volume contains of anything that may be called florid in design. When one closes the volume and asks himself what is the keynote of its contents, he has to confess that it is absolute simplicity, almost baldness, yet that it is architecturally satisfying, a record of good taste expressed with but little elaboration and obviously at only small expense. We are not rich in India. The Indian Princes and many Indian business men are, and we see their riches reflected from their palaces but few of which would stand up against sober criticism. But the Government is not rich, and no one knows it better than its own officers who have to spend the funds they are entrusted with with a sparing hand. Has this circumstance not its educational effect on its architects? We think it has. They are being trained to depend for the worth of their work on the simple elements that constitute good art. The meretriciousness of ornament is discarded, and they are turning out work, much of it in plain brick and sand plaster, which possesses the intrinsic merits of good arrangement, good grouping and good proportion, with an adaptation to purpose which may be read in the very face of it. We do not say all this for the purpose of glorifying the men whose works we are referring to; it is probable that most men trained in the art and placed under the same circumstances would achieve the same results. Our purpose is to illustrate the principle that the architect's opportunity really lies in the restriction of the means furnished to him for pursuing his art. It is merely another exemplification of the old adage—"No school like the school of adversity."

But the lesson taught to our Indian architects is surely about to be taught to architects at Home, and indeed over all Europe, on a much more impressive scale. This is a period in which building work is suspended, while buildings in large numbers are also being annihilated. The next will be a period in which the demand for building will be unprecedented while the wherewithal to build will be restricted as it never has been. The architect must then come to the rescue with a skill he has never been called upon to exercise before. He must cast aside the predilections of a lifetime and choose the materials which economy suggests, he must see to it that neither space nor material is wasted in any part of his design, he must put on one side his most cherished features of ornament and trust for his effects on simplicity and directness. His worth in fact as an architect will be valued in proportion as he has studied economy without sacrificing stability and beauty. This is to be the new ideal after the war and will be a direct outcome of it. It will create a new outlook and a new study, and if rightly taken might lead to a regeneration of art. The complaint has been made for years that the art is decaying and will soon cease to be an art; but we have with unexpected suddenness been brought to a halt with an outlook beyond differing materially from the one behind. It is for us to seize the opportunity and make the most of it.—"Indian Engineering."

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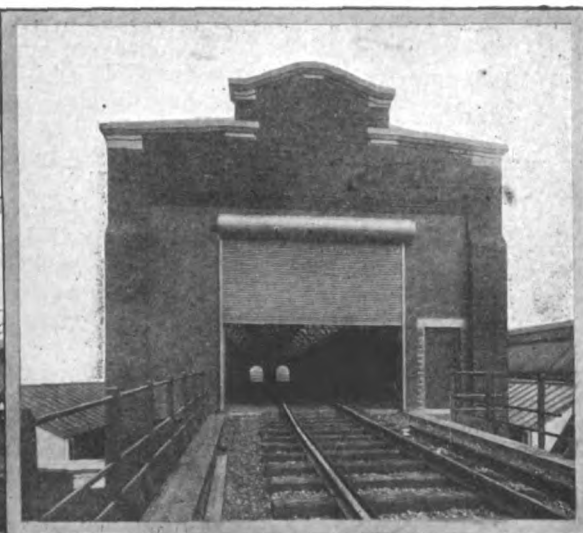
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[The Editor will not be responsible for the opinions expressed by Correspondents.]

**"From Our Own Correspondent."**

SIR.—This good gentleman, who telegraphs Belgian news from Amsterdam to English Press agencies, and, especially one of the evening papers, has just surpassed himself in his attempts to show the public how much he knows about Belgium geographically, to the amusement of those Belgian refugees who understand the English newspapers sufficiently well, especially our friends from the neighbourhood concerned.

He blandly refers to the "Farman Flying Ground near Port Arthur" in his despatch of Friday last, with reference to the air raid on Ghent; and further on states that at "Mierelbeke (a northern (sic) suburb of Ghent), the most important railway junction in Belgium," the bombs we dropped did great damage.

Now it happens that Meirelbeke is to the south-east of Ghent, and a long way from being one of its suburbs.

Moreover, there is *no* junction at Meirelbeke, but further to the south-east there is one, at *Melle*, which is an insignificant affair, where the two lines for Alost-Termonde and for Grammont meet.

"Bombs also hit the hangars at St. Dennis" (St. Denis-Westrem) "and new German defence works along St. Amanaseerg, towards Oostacker (three miles north-east of Ghent)."

He means St. Amandsberg, or Mont St. Amond, which is a continuation of the street leading from the Marché du Vendredi to the Waesline stations and the Porte d'Anvers, and is close to the place where Lieut. Warneford brought down the Zeppelin single-handed, and under two miles from the belfry as the crow flies.

"Ghentbrugge (an eastern suburb of Ghent)," appears now to have an arsenal (German, of course), and "a munition factory at Ledeberg (two miles south-east of Ghent)" is no more, thanks to our airmen. But Ledeberg is as much Ghent as Wandsworth is London. The same remark applies also to Gentbrugge (as it should be spelt).

The astonishing "Caves" blunder came up smiling again recently; and a view of the ruins of Arras Town Hall was, in all seriousness, palmed off on the readers of a daily illustrated as those of the Cathedral there; while in another daily the spire of the church of Notre Dame at Poperinghe was shown as the Germans' favourite target, with the base of the tower hidden by a bursting shell, the picture purporting to be that of St. Bertin's Church there, which has a squat west tower with equilateral roof. I sent the editor a correction immediately, but evidently he did not like to own up to being in the wrong, for he refused to correct it.—Yours, &c.,

NON-IGNOTUS.

**A.A. War Service Bureau.**

SIR.—Last summer I made an offer to the Board of Agriculture to use the machinery of the War Service Bureau for the purpose of raising a body of professional men to assist in harvesting work, owing to the shortage of agricultural labour. Although the offer was courteously received it was not accepted. I have now, however, been approached with a request to proceed with the matter, and I should therefore be very glad to hear from anyone who is prepared to give at least four weeks of their time to harvesting work.

Arrangements will be made to send applicants for a few days, in the fourth week in August, to a training and clearing station before being placed out on various farms.

They will receive board and lodging in return for

work while at the station, and when they are placed out on farms they will receive board and lodging and a small wage.

Every effort will be made as far as possible to keep together men who wish to work with each other. I am sure there must be a very large number of members of the architectural and surveying professions who would like to assist in this work of very great national importance, and I should be very glad if they will kindly communicate with me immediately.—Yours, &c.,

August 8, 1916.

F. R. YERBURY.

**BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.**

**A LIST OF WORKS PROJECTED OR COMMENCED.**

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

**ENGLAND.**

**BERKSHIRE.**

*Stockcross*.—Two cottages, Gravel Hill, for Sir R. Sutton, Bart.

**DORSET.**

*Portland*.—Council school.

**ESSEX.**

*East Ham*.—Proposed John Cornwell Memorial cottages for disabled sailors.

*Stratford*.—Council schools for boys, girls, and mixed

**KENT.**

*Hadlow*.—Council school: alterations.

*Maidstone*.—Extractor-plant house, Springfield Mill, for Messrs. W. & R. Balston.

Garage, London Road: conversion into cottage, for Mr. S. Sharp.

Two houses, Old Tovil Road, for Mr. N. Smith.

Two houses, Tonbridge Road, for Mr. R. Lawrence.

The "Duke of Brunswick" p.h., Upper Stone Street: alterations for Messrs. E. Mason & Co.

**LANCASHIRE.**

*Fleetwood*.—Coffee tavern, Wyre Dock: extension for the Fielden Sailors' Rest Committee.

*Manchester*.—Working-men's Club, Abbey Hey Lane, Gorton: additions.

*Ormskirk*.—Works, Burscough Street, for the United Brassfounders and Engineers, Ltd.

**LINCOLNSHIRE.**

*Caistor*.—Slaughterhouse for Mr. F. Smith.

**STAFFORDSHIRE.**

*Biddulph*.—Premises: alterations for the Co-operative Society.

*Chasetown*.—House, High Street, for Mrs. Whallett.

**SURREY.**

*Barnes*.—House, Ferry Road, for Mr. A. Harvey.

No. 46 North Way: alterations. Messrs. Brewer, Smith & Brewer, F.F.R.I.B.A., architects, 6 Queen Square, London, W.C.

**SUSSEX.**

*Hove*.—The "Prince's" Hotel: extension for Mr. H. E. Trangmar.

**WARWICKSHIRE.**

*Kingsbury*.—Factory, Grove Park: extensions for the Aircraft Manufacturing Co., Ltd.

**YORKSHIRE.**

*Goldthorpe*.—Proposed parish hall (for 440 sittings).

**SCOTLAND.**

*Brechin*.—Buildings, Clerk Street, for Mr. J. Barrie.

*Dundee*.—Property, Lochee Road: alterations for Mr. Alex. Ramsay.

Walton Works, Brook and Edward Streets: warehouse for Messrs. J. N. Kyd & Co.

*Glasgow*.—Works, corner of Hawthorn and Ashfield Streets: extension for Messrs. A. & J. Main & Co., Ltd.

*Inverurie*.—Factory, Souterford Road, for Messrs. Spence & Son, of Huntley.

*Longniddry*.—Forty cottages for the Veterans' Garden City.

**IRELAND.**

*Carrigallen (Co. Leitrim)*.—Church, Drumeela: alterations and improvements. Mr. J. J. McDonnell, architect, 27 Chichester Street, Belfast.

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# THE ARCHITECT

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### BUILDING—AND OTHER—TRADE.

"THE discipline of war has prepared the way for the organisation of trade," writes Mr. Ernest J. P. Benn in his recently issued and stimulative little book\* on "Trade as a Science," and the reflection arises whether in the trade, that of building, with which we are most intimately connected, we already possess organisation, and, if so, whether it is adequate for securing the greatest advantage to the community at large.

We lay stress on the point of advantage to the community at large, for, we are happy to note, this war is undoubtedly teaching us, if only slowly and gradually, that the welfare of the community is the most potent factor for the welfare of the individual. Our national predilection in the past, based undoubtedly upon our characteristic love of freedom, has been to give the fullest scope to the initiative and the effort of the individual, and in so doing, to discredit any measure that would seem to limit his freedom.

Our enemy, Germany, has adopted the opposite point of view, and by following the principle of organisation of individual units for the benefit and with the assistance of the community, has attained, during the forty years that she has been united as an Empire, to so high a pitch of wealth and power that she has conceived the idea that she is capable of dominating the world. Impatience to achieve at once, by force of arms, what another ten or twenty years of peaceful penetration would in all probability have given her without bloodshed, has led her to the present attempt at mastery, an attempt which has only failed by a very little of complete success.

We should be blind therefore to refuse to recognise the superiority of our enemy's point of view over our own, and we should be more than foolish if we refused to take for ourselves the benefits of national organisation as the most fruitful source of prosperity for the individual citizen. True it is that our temperament will resent and probably render impossible any adoption of the system of despotism by which the national organisation of Germany has been accompanied, though even we have been forced by overwhelming necessity to substitute universal service for voluntary enlistment in our armies. It is chiefly with voluntary organisation that Mr. Benn deals in his book, though there appears to be a recognition that some measure of control may be necessary by the State, preventive rather than coercive, to avoid individual interference with communal action.

In the building trade we have undoubtedly a certain amount of organisation. On the one hand, we have our Associations of employers, on the other hand our Trade Unions of employed. But this organisation is not and does not aim at being constituted with the object of

securing the greatest advantage to the community at large. Relatively to the community, the Employers' Association and the Trade Union are individuals, and are in existence purely for the purpose of fighting with each other. The very weapons with which they fight, the lock-out and the strike, are detrimental to the community as well as to the individual, primarily because their use entails the lessening of production, and it is the increase of production to the highest possible extent that makes for the increased wealth of the community.

Both employers and employed amongst those who are to-day engaged in any branch of the manufacture of munitions, using the term in its widest sense as applying to every product needed for the purposes of war, cannot help realising that the present intensity of production operates to their individual advantage, as well as to that of the community. And this when the production is directed to the destruction of wealth. How much more then should a similar intensity tend to the general as well as the individual advantage when directed to the production of things useful to the community, and so to the increase of national wealth?

Mr. Benn deals rightly with a most important factor which bears upon the cost of manufacture in this country, the attitude of the employer towards labour and the consequent attitude of labour. "The piece-work price of a job," he says, "is fixed at a figure, and the workman deliberately restricts his output so that he does not earn more than a fixed amount. His reasons for so doing are twofold; first, he knows that if his earnings exceed the thirty shillings which the 'masters' have decided is the proper figure for a man of his social standing, the price of the job will be reduced. Secondly, he fears that if he performs too much work he will throw some fellow-sufferer out of a job. Both of these errors," says Mr. Benn, "can be laid at the door of the masters."

He goes on to show the reality of the errors, pointing out that if machines were worked full pressure, and workmen permitted to earn four or five times as much as at present, the unit cost might be half what it is, and proper organisation of selling by the master would prevent any glut in the home market, and ensure ready disposal of the output in that of the world. It may be said that the building trade does not stand on the same footing as manufactures whose production is capable of export, that the market for buildings is essentially a home market, and the demand limited.

Our experience in the practice of architecture proves the fallacy of this argument. The home market for building is not by a very long way limited to the present—that is to say, immediately pre-war—production. If the cost of building were reduced to a level corresponding, at London prices, to a standard of £10 or £12 a rod for brickwork, we have no hesitation in expressing our firm conviction that the amount of building in this country would be at least three times what it was at midsummer in 1914.

Take only one department of building activity, the erection of houses, particularly for the working classes, in which there is such an appalling shortage. What is the reason for the limited activity in house building? Nothing but the fact that houses cannot be built at a figure which will render possible an economic rent that their prospective tenants can pay. It is the same with factories and warehouses. Many more would be demanded if their cost did not overweight the capital on which manufactures have to pay a dividend. So also with other business premises and all classes of utilitarian buildings. Public buildings in greater number would be erected if their cost did not cast so great a burden on the rates or the national exchequer. Even churches would be undertaken in greater numbers if they could

\* "Trade as a Science." By Ernest J. P. Benn. With introductory preface by the Right Hon. Lord Burnham, M.A. (London: Jarrold & Sons. 2s. 6d. net.)

be built for sums more in accordance with the financial resources of their promoters.

It is a fallacy also to assume that the home market is the only one open to the building trade. Apart from the openings that will be presented on the arrival of peace by the urgent need for repairing the devastation of war, there is a field not only for material, but for finished workmanship in export trade of parts of buildings which is almost unlimited in its possibilities. Already, to a limited extent, buildings, not merely of temporary character like wooden bungalows and hutments, but of a permanent nature, have been exported almost in their entirety, but in parts regulated as to their size only by considerations of handling and transport.

The development of the export of buildings has great potentialities, but, in common with other British manufactures, generally needs the foundation of Export Associations, which is one of the subjects of which Mr. Benn treats, and, incidentally, an efficient remodelling of our inadequate Consular Service.

The author of "Trade as a Science" well points out three tremendous advantages that Britain possesses which, if properly used, place the rest of the manufacturing world under considerable disabilities. These are the position of London as the money market of the world; our national position as Mistress of the Seas; and, thirdly, "the reputation which this old country still enjoys the world over for a square deal." There is no reason why the building trade of this country should not reap the benefit of these three advantages.

What our own particular interest needs is the co-operation of Employers' Associations and Trade Unions in the intensification of output in the building trade. The bricklayer must be permitted to receive his five pounds a week as a normal rate, and he must not limit his output to the laying of 600 bricks a day. High wages and maximum output must be our aim in the building trade, to the mutual advantage of the community and the individual.

We commend Mr. Benn's book on "Trade as a Science" as not only interesting, but as possessing high instructive value to everyone connected with the building trade in common with all other productive trades of our country.

#### NOTES AND COMMENTS.

THE latest argument of the supporters of the present system of restricting the use of our cathedrals and of making a charge to "raise a salary for our vergers" is that unrestricted access leads to damage by souvenir hunters and other miscreants. The weakness of this argument is shown by the fact that only a small portion, as regards area, of the cathedral is usually closed against those who do not pay for being personally conducted, and by the practice adopted in many of those churches, below cathedral rank, which are open to all, for "rest and meditation," of utilising the services of voluntary guards, whose mere presence is sufficient to prevent depredation. There are plenty of faithful Church-women in every cathedral city who would esteem it an honour as well as a pleasure to keep vigil.

A letter from the Rev. William Souper to the "Aberdeen Free Press" calls attention to the opportunity and the desirability of the acquisition by the Town Council of Aberdeen of Cumberland House, No. 45 Guestrow, in that town, and a subsequent letter from Mr. G. M. Fraser gives the following interesting description of the building:—

The main interests of the house are two: (1) Its historical and architectural interests, and (2) its interior construction and decoration.

With regard to the historical and architectural interest, that is fairly well known. It is the best example—one of the very few—remaining in Aberdeen of the old "baronial" type of domestic architecture in Scotland. The oldest part of it dates from about 1580, and a con-

siderable portion, the eastmost portion, was built by Sir George Skene, of Fintray (and Rubislaw), who was Provost of Aberdeen, 1676-84.

But the main point of interest at present, as Mr. Souper mentions, is the interior decoration, which is very remarkable, and is now clearly seen, and well worthy of study and preservation. The first floor of the main building consists of three rooms en suite. The eastmost room, the dining-room, is panelled in timber. The westmost room was the drawing-room, also panelled, with a white marble mantelpiece as the notable feature. Between these two rooms is an apartment about 12 feet square, the decorations of which are probably unique in Scotland. (Mr. Souper, who has been making a special study of Italian renaissance work in art and literature, believes there is nothing quite like this room in the country.)

The room is panelled from floor to ceiling, and every part is painted in the most remarkable way—in seventeenth-century work. The large panels are painted in what, at first sight, seems rough marbling, while the framebands or styles that surround the panels represent, in an exquisitely beautiful way, classical or Italian scenes and figure episodes. After most careful examination to-day, Mr. Souper arrived at a beautiful theory of the paintings that will doubtless be tested by fuller study later. It is that the whole is the work of an Italian artist, who represented in the panels a background of rock-structure, familiar in the Apennines, and around these he worked in beautiful memories of Italian scenes and episodes. On the frames of the upright panels the scenes display great depth of treatment, while the horizontal bands, that run the whole length of each wall, and are in triple form, show very special study in this way that the upper and lower bands carry rich, full-coloured landscape and figure scenes, while the middle band, in sepia and white, depict largely city views, the towers and other buildings being worked in a particularly dainty Turner-esque way. One wonders that the delicate work could have been preserved as it has been without special care, and no doubt it is due to very carelessness in over-laying the walls with paper or other material. Even the shutters of the windows, back and front, are dealt with in the same way, and by the use of lighted matches one curiously interesting scene behind the shutters was brought out—a pagan temple, formed of great monoliths, almost a reproduction of Stonehenge.

Whilst there are often local circumstances that modify in one direction or another the conditions affecting the readiness of builders and those who finance them to provide housing accommodation for the people, there can be no doubt that the present acute and distressing shortage is mainly due to the causes well summarised by a writer in the "Liverpool Courier" as follows:—

(1) The taxation of not only the land required for building, but of the profits of their enterprise, i.e. brickwork, joinery, &c.; (2) the difficulty of obtaining mortgages owing to the withdrawal of capital from what used to be looked upon as a first-rate security for the investment of money; (3) the increase in the stamp duties; (4) the proposals to limit the number of houses per acre under the Housing and Town-Planning Act, 1909; (5) the increased power under the building by-laws of local authorities, which caused extra expenditure for concrete foundations and restricted the use of roof space for bedrooms, &c.; (6) the increased cost of production owing to higher wages and advanced cost of building materials.

The necessity for combination in trade of those who are at present rival manufacturers is well put by a writer in the "Sheffield Daily Telegraph," commenting on the backwardness of Sheffield as a corporation in lending its aid in fostering the business of Sheffield's citizens. The city, he urges, should "send out agents or consuls who will stand for Sheffield, instead of merely for Jones, of





A DOORWAY AT KING'S LYNN.

Sheffield. It will cover more ground, at less cost, and so will win more orders.

"It will be a costly business, for instance, for Jones to maintain a show-room in Paris, Petrograd, Rome, Madrid, Constantinople, Cairo, Bombay, Calcutta, Tokio, Pekin, Melbourne, Cape Town, Vancouver, Montreal, Quebec, New York, Chicago, and scores of other places that will readily occur to the mind. But Sheffield ought to have a show-room, and an enterprising staff, in each of these cities; and if Sheffield is as live as it ought to be in grasping the world opportunity now presented to it that is what it will do.

"But it can only do it by combination. The individual firms, standing alone, cannot impress the world; and Sheffield has to do that if it is to rise to the height of its opportunities."

We should go further and advocate that a national combination and organisation of each trade is the best means of gaining for British manufactures the place in the world's markets to which our skill and our natural advantages entitle us.

Objectors, conscientious or otherwise, are always to be found to any and every proposition, and that without the necessity of going out of Great Britain, but we do not fancy that there will be many to join in protest against the erection of memorial tablets to our present-day heroes in our cathedrals on the ground that these are entirely at variance with the original intentions of the

cathedral designers. In the first place, the objection is not true. Founders' tombs, chantries, shrines, and other memorials were a commonplace in the days when cathedrals were built, both in collegiate and parochial churches. They were not always additions of subsequent ages, but formed part of the scheme of the actual designers of the buildings. Of course the erection of memorials in any particular building can be overdone, and their execution can be detrimental to or destructive of the original design, but they need not be so.

Another of London's City Churches is said to be doomed to destruction—St. Alphege, London Wall. Originally, the tower formed part of Elsing Spital, an institution founded in 1329 for the relief of the blind, and to-day it is one of the few, if not the last, architectural remnant of the many small charitable institutions of mediæval London. There is a proposal that St. Alphege Church shall make way for a commercial building, and the parish be merged into that of St. Mary Aldermanbury. Only the tower, it is said, will be kept—to be incorporated in the new premises.

Mr. C. E. Keyser, F.S.A., has presented to the Reading Museum fifteen Norman capitals, very elaborately carved, two voussoirs of a Norman arch, and other pieces of carved masonry from Borough Marsh, Sonning, and the site of the Bishop of Salisbury's Palace at Sonning. Mr. Keyser writes:—"The fifteen Norman capitals and



two voussoirs of a Norman arch, which I have sent to the Reading Museum, and which I hope the committee will be willing to accept, have had a chequered career. They were till recently lying about in the gardens of Holme Park, Sonning, and were rescued by me and put under cover before the mansion was sold. It is known that many years ago they were brought from Borough Marsh, where are remains of some ancient buildings, in Sonning parish on an island formed by a backwater of the Thames and the river Loddon. It is not known how they got there, but it is a fair presumption from their size and the excellence of the carving that they must have belonged to some building of more than ordinary importance, and there can be little doubt that they formed part of the cloister of the great Abbey of Reading. This was more than thirty years in building, and the numerous fragments remaining prove it to have been a magnificent example of the Norman work of the middle of the twelfth century. After the dissolution of the monasteries the ruins became a quarry for all who liked to remove the stones, and barge loads were taken to Windsor in 1557. It is, therefore, probable that these capitals, and some more sculptured stones still preserved at Shiplake House, were removed from Reading Abbey, and as the capitals are carved on all four sides they must have belonged to an open arcade, the cloister arches, as has been suggested. The other carved stones were dug up on the site of the palace of the Bishop of Salisbury at Sonning, and are relics of the twelfth, fourteenth, and fifteenth-century buildings which stood there. I feel strongly that the Reading Museum is the proper resting-place for these interesting remains.

We are informed that the London Association of Master Decorators, which is the official body of Master Decorators and Painters, recognised by the Board of Trade, &c., has agreed with the Painters' Union to pay a fixed rate of 10d. per hour to painters as from August 12 current for the duration of the war and for a period of nine months after the declaration of peace. This rate is now in conformity with that paid by the London Master Builders' Association, and as demands not supported by the Painters' Union are being made by some of the men to obtain a further increase the London Association of Master Decorators ventures to ask the assistance of the trade in resisting these demands. Having now arrived at a flat rate of 10d. per hour for painters with the whole of the decorators and painters of London it is felt that it would be disastrous to again have two rates, and the co-operation of all employers will therefore be esteemed.

## ILLUSTRATIONS.

### RAILWAY STATION, LA PAZ, BOLIVIA.

LA PAZ Station is the new terminus of the great railway carried up from the Chili coast at Antofagasta into the Andes Mountains in Bolivia. The work is entirely in the hands of the Railway Company, all the fittings and sundries being supplied by various firms in London and sent out in a condition to go straight into the building. The architect is Mr. Arnold Mitchell; but the building is held up at the present time by war conditions. The accompanying illustrations are supplementary to those we gave last week. In our issues of July 21 and 28 we gave details of Mr. Arnold Mitchell's working drawings for Antofagasta Station.

### DESIGNS FOR SMALL COUNTRY HOUSES.

THESE sketch designs were prepared by Messrs. Ernest Runtz, Son & Farrow for an estate in Surrey, but their realisation has been hindered by the war.

MR. G. T. HINE, F.R.I.B.A., F.S.I., who died on April 15, of Hertford Street, Mayfair, W., and of G. T. Hine & Pegg, architects, of 35 Parliament Street, S.W., has left £47,922 (net personalty £29,199).

## SKETCHING AS A STUDY.\*

By WALTER R. BUTLER, F.R.I.B.A.

DURING the first eight years of my architectural career in England, I had opportunities of sketching that unfortunately do not lie within our sphere of study in this newer country, which is so far removed from the historical and finest work of man that has stood the test of time, and it may be that some account of my experience will be of interest to you. I therefore venture to address you on account of the advantages I have had, rather than on account of any special knowledge of the subject, and with the hope that those students who have come to hear me to-night may derive, perhaps, some small benefit from what I shall have to say.

In learning to sketch, I could not advise you to follow any very different course to that I followed, but I would advise all to follow it more studiously, and I would advise you also to have the same object in view—viz. that the study of your profession is the purpose of your sketching rather than the making of pretty pictures, and, primarily, you are to learn to sketch in order that you may be able to set down clearly and usefully records of such things as cannot be described in words; either to assist your memory of them, or to convey distinct ideas of them to other people.

The one and only way to learn to sketch well is to draw carefully, patiently, and constantly, that you may attain a delicate method of work such as may ensure your seeing truly. The question is asked by some who do not know, "Why learn to sketch at the cost of such labour, when in these modern days photography and reproduction have brought within the reach of all endless illustrations of the best things ever done by men?" It is true that we can store much information in books and photographs, but these, without an inherent special knowledge, would be almost useless to us. Put a whole library of books, for instance, in the hands of an amateur, and ask him to design you a certain building, and what would be the result? Good books and photographs are useful things to have around you and helpful in design, but the help and satisfaction obtained from them is much lessened without the aid of the special knowledge acquired by sketching. An architect who can refer to his own sketches has an advantage over one who only refers to reproductions of other people's sketches, as a composer has over a would-be musician who has only the pianola to fall back on.

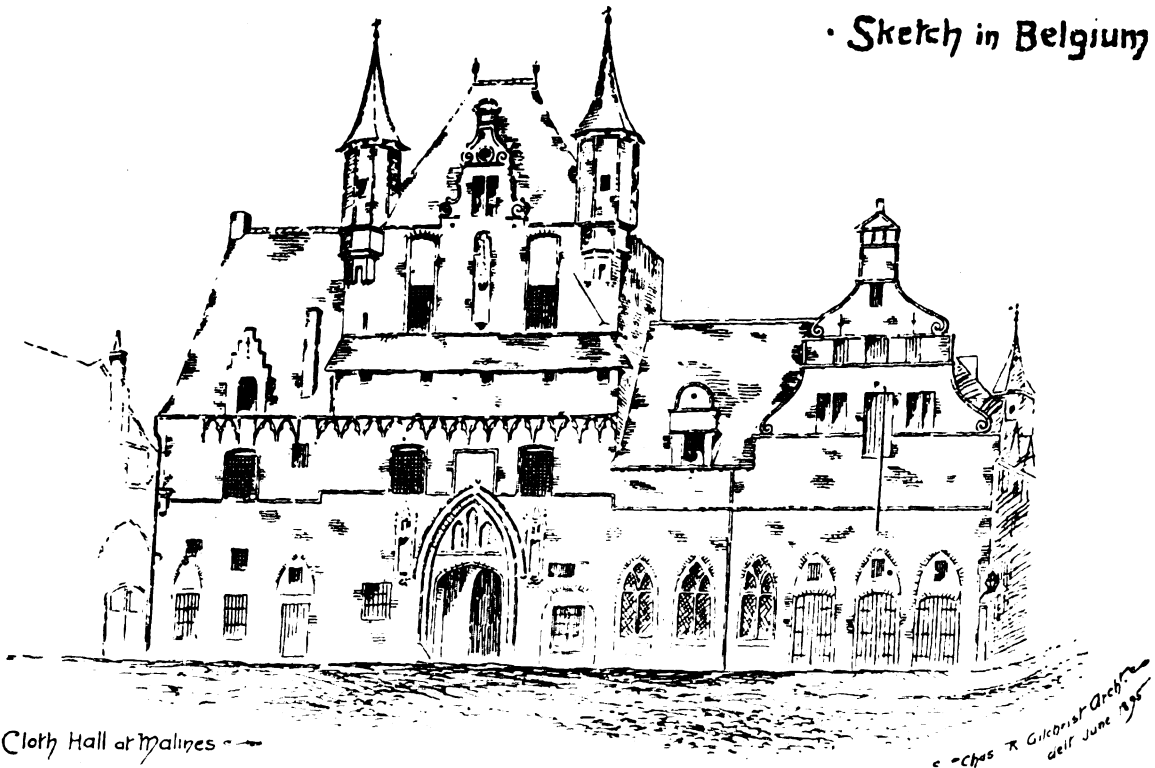
Before you can design you must store the mind with matter or food for design, and the student of architecture can best do that by sketching, and in order that there may be a constant freshness in his designs he must continue to sketch, sketch, sketch all through life. I must own that it is very difficult for the architect to maintain a habit of sketching in Australia, and one of the difficulties for the student lies in the fact that we are surrounded by so large an amount of injurious matter, and so little that will do him anything but positive injury to sketch. In an old country the student may, almost without risk, sketch anything old; and in so doing he will be storing his mind with good ideas of design.

It is hardly a matter of opinion, this question of whether or no work is good or bad. I say, emphatically, some work is good and some is absolutely bad and injurious to look at and much more so to draw, and anything you draw that is bad will do you positive injury. But we must make the best of what we have to study and sketch, and for those who are so disposed there is artistic food of sufficient value to enable him to achieve great things in his profession.

In England we were taught that we could not go wrong in drawing anything old. Well, that is equally safe here; but the trouble is that there is so little that is old (by "old" I mean, of course, at least a hundred

\* A Paper read before the Victorian Architectural Students Society.

• Sketch in Belgium •



— The Cloth Hall at Malines —

The Cloth Hall at Malines, one of the best known examples, was commenced in 1340, but left unfinished, the superstructure being of the 16th century.

or two years old) and the old things that we have here are out of place. They are in museums or in the houses of the rich, instead of being in the places they were designed for, in old village churches or farmhouses, cottages, and so on. However, when you do find anything old, you cannot go wrong in carefully drawing it forthwith, no matter what it is; it may be an old Georgian sugar basin made of silver, or a spoon, or a bit of Grecian pottery, or a piece of furniture, carving, or metal work, whatever it is, if it is not of nineteenth-century manufacture, the lines of it are pretty sure to be good.

Don't mistake me, I do not for a moment wish to say that everything made prior to the commencement of the nineteenth century was good, and everything made in it was bad; for there is a vast amount of the injurious extravagance of art-run-mad in the florid periods of the Renaissance, more particularly on the Continent, long before the Gothic revival in the nineteenth century spoilt, in England, the natural flow of art. It may be true that in the midst of all the turmoil and jumble of styles at this period there came into being some fine examples of individual ability, but the difficulty is to assist the student to discern the good from the bad. But the subject is too big to more than mention here in passing. However, if you draw carefully all the "old" things you can find, you will get a deal of good.

Notwithstanding what I said before about photos and reproductions, you should draw much from photographs of old buildings, they are the best substitutes for the buildings themselves. You can often get excellent and large photos of architectural carvings, ornaments, and general detail, and there are quantities of excellent drawings of old work published in the English architectural papers and in modern works on architectural detail illustrated by photography that would be very good for you to draw, and that would help to form your style.

But in addition to this, you must draw from actual work, so that among other things you may also get to know materials and their colours, and how they look in actual fact, the forms of mouldings, the depths and projections of carvings, the treatment of surfaces, and many other matters. You should also note the colour of things you draw, and often when you cannot sketch in colour make notes on your sketches regarding the colours.

In London, chiefly in the winter months, we used to sketch a good deal at the museums, and I would suggest the same course here. There are many things of interest to architectural students in our National Gallery, and they have the advantage of being easily accessible on Saturdays and holidays, and so on, and if you want to learn and to become well informed and well qualified in your profession, and to know much that is worth knowing, you will have to be about it on high days and holidays, Saturday afternoons and evenings, and, indeed, will need to spend practically the whole of your time that is not spent in the office, in one form of study or another.

Sketching is a means to an end, a means that, when acquired, may be pressed into the service of an architect in an infinite variety of ways. One of its uses and pleasures that should be taken advantage of by the student is the drawing constantly from nature, that he may obtain a quicker perception of the beauty of the natural world, and may also preserve something like a true image of beautiful things that pass away, primarily with the intention of storing the mind with knowledge of true and beautiful form. He should draw such things as flowers, leaves, birds, animals, and trees, particularly those that may most readily be pressed into ornamental service in hammered iron, beaten metal, carved stone and wood, or painted and other decorative work. Learn to sketch well and rapidly; finish your sketch on the spot, and make it express only the character and features inherent in the object you are drawing, that you deem worthy of record. A sketch has value in proportion to the care taken over it. None but good sketches will impress the thing drawn upon your memory or be of any use as reference to you afterwards.

One of the first achievements in right sketching is the learning to see. As surely as a kitten gropes about nine days in the dark, so certainly does the ordinary "human" man, sometimes for his whole life, grope about the world in full view of things without seeing them, and it is not till an attempt is made to draw them that you discover the fact that never till then had you really seen them or become familiar with their exact form.

Drawing things opens your eyes to see them and your brain to receive them as an indelible imprint on your

memory. As you draw a moulding you instinctively put out your hand and feel it with your fingers to determine its exact roundness. You measure the depths of its undercutting and its projection with your two-foot rule, and you note the fact that none of its curves are drawn with the compasses.

And this brings me to the next important matter to be observed in the sketching of an architectural student. Always carry a two-foot rule, and always measure the things you draw, and if you are drawing from the reproductions of measured drawings, note all the figured dimensions or draw your sketch to scale. Your sketches that carry figured dimensions are far and away the most instructive, and are also the most useful to you in after years.

In Hobart (Tasmania), not long since, I noticed some most interesting fanlights of Georgian character, and was struck by their great variety. I walked about the streets on two separate days and made some sketch notes of them and have brought you along my book of these, and I think you will agree with me that they are quite delightful.

On my last visit to England I had a very interesting week with the members of the Architectural Association of England, on their annual excursion. Shrewsbury, in Shropshire, was made our centre, and from the Old Raven Hotel in that ancient town we made daily excursions, chiefly by "char-a-bancs" that held about thirty of us, and it was most interesting to see how everyone turned out with his sketching kit and squatted or stood about the old buildings we visited, with sketch book produced the moment we arrived. We all sketched, young and old, the whole day long.

I was afraid, at first, that my work would be very feeble beside the others, particularly as we had men like Gerald Horsley, A. N. Prentice, Banister Fletcher, and some also who sketched for the papers and who were very rapid indeed and covered endless sheets in little time. The last evening we all had to send our sketches round the room for inspection.

Some were very good and some were not so good, but probably because they knew I had done no sketching for over twenty years, they were very kind in their comments on my work, and my Australian companion on the trip, Allan Walker, of Hobart, said he was very proud of me, so I, of course, came away quite happy, and much benefited by the delightful companionship and the most profitable and interesting week's study that I had at any time during my visit to the old country.

These Architectural Association excursions generally take place in August, and the members are always pleased to welcome anyone from Australia, but if any of you ever join the party, I would suggest that you do what Walker and I did, and you will find that you will then be even more welcome still, for Walker took a case of Australian apples—which he distributed daily—and I supplied the members with chocolates and butter scotch. On these excursions visits are arranged by the hon. secretary to manor houses, castles, churches and the like, beforehand, and the owners of the fine old houses that England can boast of to the world throw them open to the members with the warmest open-hearted hospitality.

In all cases we were allowed to wander at will through the reception-rooms and private apartments of the family, and saw the most charming work and the rarest treasures that the magnificent old country homes contain; advantages that are entirely shut off from the ordinary tourist, who can only get an entrance to the public rooms of such houses and buildings as are on show to the people at large.

I have brought you a few snapshots, taken on this excursion by my friend Walker. I did not take any photographs; you can't easily take photographs and sketch too. A glance at the photos will show you that we worked under all sorts of conditions—under umbrellas, sitting on tomb-stones, climbing up gate pillars, and so on. Walker was a little unscrupulous though with his camera, for on one occasion he snapped me

talking to a girl and sent a copy of it to my wife, if you please.

Sketching is a fine medium or common ground for companionship, and the stimulation of rivalry and criticism of those who sketch with us is very beneficial to our work. Personal touch and fellowship are helps to good work, and if the fostering of sketching among students were to help in the development of greater sympathy and an extension of professional brotherhood in this country it would do much good if from that standpoint alone. For professional aloofness and jealousy are more conspicuous here than that "bonhomie" and fraternity among professional men that is more general in the older world.

Among other things for you to look at this evening I have brought you some drawings that will show you how immeasurably the art of sketching as practised by a great artist soars above that of a more or less industrious architectural student. These drawings, which I will show you presently, consist of sixteen genuine original pencil sketches by Samuel Prout. Prout was born at Plymouth in 1784, and died in 1852. Ruskin says "he was a very great man," and, writing in 1846, he says of him: "There has yet appeared nothing at all to equal him, there is no stone drawing, no vitality of architecture like Prout's."

I am sorry these examples of his work are not more architectural, but I am sure they will delight you beyond measure, though only a few of them treat of our own special subject. Most of us are familiar with the lithographic publications of many of his architectural works, and will the more readily realise the beauty of these reproductions after seeing some of his originals.

Doubtless as a pictorial display of architecture-cum-nature nothing in pencil can surpass Prout's work, but I am of opinion that his manner of drawing, beautiful as it is, lacks definiteness in architectural detail to a degree that makes its advocacy as a style for students of architecture doubtful. Place a drawing of Norman Shaw's by one of Prout's, for instance. Shaw's will tell you all that a drawing can tell of architectural detail, but Prout's will tell you little beyond the great fact that it is intended to tell, viz., that good architecture is very beautiful.

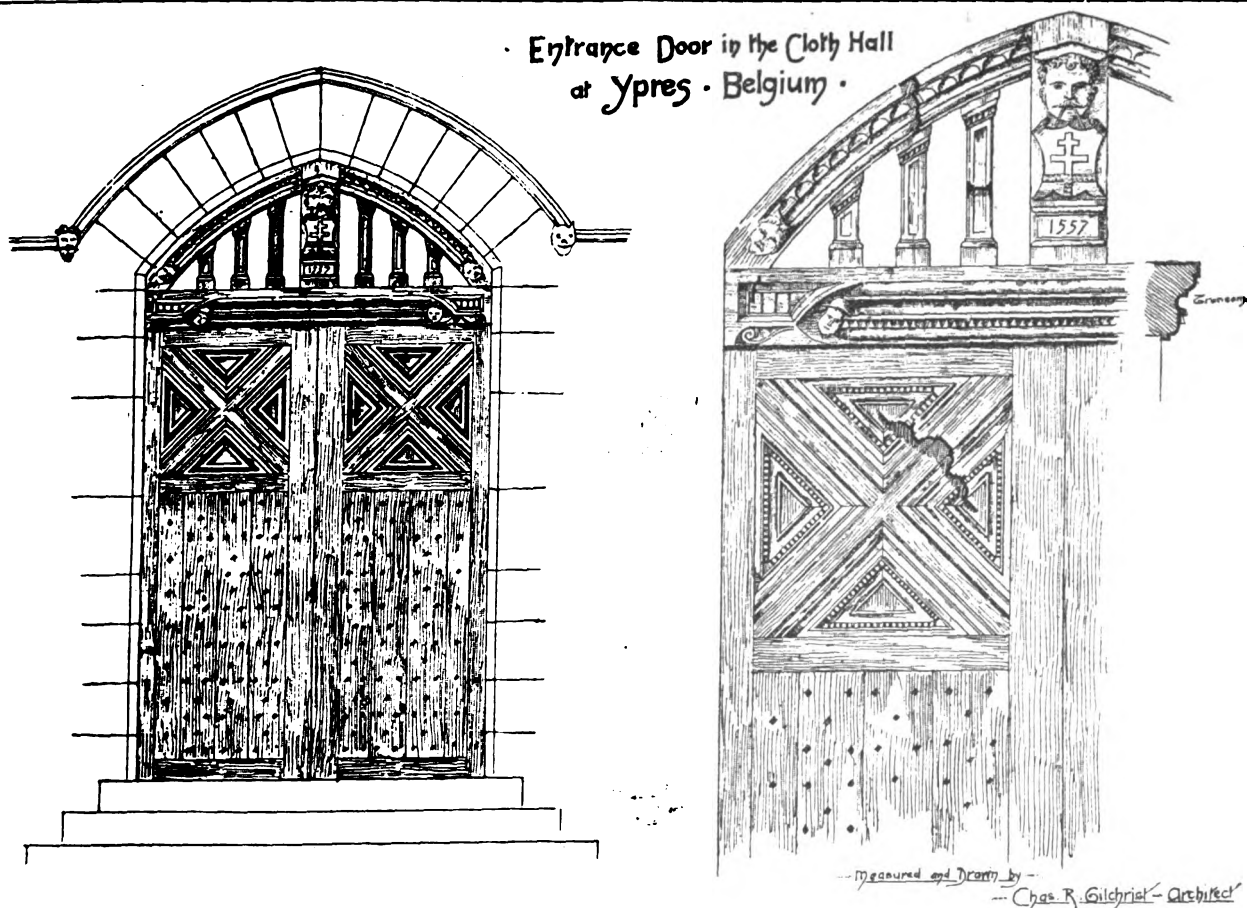
The difference is one of style. Prout's work is an excellent example of early Victorian drawing, but it seems too laboured for our use. I could say a good deal to you on this matter of style, but time will not permit. You must discover the style that suits you best and work at it. You will see some fine specimens of work in the folios of the Architectural Association Sketch Book I have with me to-night.

You all know the good draughtsmen's work when you see it, and all that you have to do is to follow in the footsteps of one or other of them and you will soon tumble into a style of your own. I would, however, suggest for those who are only beginning, that both in the outline of your masses and also in the lines that compose the shadows, make your lines clear and distinct, and you should, I think, learn to draw with a fine point, and leave a white space between your lines that give form to and make up the shadows of your subject.

Shading in the more finished drawings where great depth is required may be crossed, but even then the cross lines will still be quite clear of each other, and a magnifying glass will show you little diamond-shaped spaces of white between the lines, and this applies to both ink and pencil drawings, and is, perhaps, the best way of getting clear and sunny effects, and produces the best drawing for reproduction.

In the days when I was no longer made to "crawl like a snail unwillingly to school," I was fortunate enough to be articulated in the same office with a man of exceptional genius—W. R. Lethaby, who is now Professor Lethaby and architect to Westminster Abbey, and deemed to be the most erudite authority on architecture in England to-day. His writings, as well as his magnificent drawings, many of you will no doubt be familiar





The Cloth Hall at Ypres was the largest building of its kind in Belgium. The town was formerly the capital of West Flanders, and, during the Middle Ages, a great linen manufacturing centre. The Ypres Cloth Hall was commenced in 1201, but not completed until 1304. The door illustrated, however, only dated from 1557, as inscribed.

with. It was on a month's tour in France with Lethaby that I filled one of the sketch books before you this evening. He was some ten years my senior, and his work was always a sort of talisman to me, so much so, that I owe much to his influence from the outset of my architectural studies. Nevertheless, Lethaby used to say that he had wasted years of his life in learning to draw, and he has repeatedly emphasised the fact that architects do not need to know how to make pretty pictures.

What they need to know is how to design and execute buildings, and, therefore, I say don't sketch (except on rare occasions) for the purpose of making pretty drawings, but keep in mind, rather, that your sketch is a study of architecture, and figure your drawings freely with dimensions, and run sections and plans across them in any way that may be desirable to show exactly how the work is constructed, but do, at the same time, always place your dimensions, sections, and so on, in as neat and artistic a manner as you are able, in relation to the drawing and their due positions on the page, and let every sheet develop into a picture if it will.

Having made your sketches, do not let your work of study end there; draw many of them out to scale afterwards, it will impress upon you the proportions of the work measured, and tend to make you more accurate in sketching. Don't labour to fill a certain number of books or sheets, and only sketch when you have something worth sketching, and when you are in the mood for it, and you will find that a very few years, with six or eight hours a week spent in sketching will make you sufficiently dexterous to rapidly note any bit of architecture you may wish to record, or to make a more elaborate study of a piece of ornament or decoration.

You will find it useful in some cases to set your work down to scale on the spot; even if you only set out the main dimensions to scale, it is sometimes helpful. For instance, in drawing the ceiling of a room 20 feet by 15 feet, you can plot the outline to scale in your book and divide up the squares or panels in truer proportion than you otherwise would be able to do, and can put in the modelled work in the panels more accurately.

Some people suggest blocks instead of books for sketching, but books, in my opinion, are best for many reasons—in measuring, you can close your book quickly with your pencil in it, and the work is kept clean, and you can turn over quicker than you can cut off and put away a finished sheet. The sketches keep better afterwards and are less liable to get lost. In reference afterwards you can turn to one book or another for things you want, with greater certainty and rapidity. I regard the block sketcher as a sort of dilettante at the game. He gives one the idea that he intends to sell his sketches, or, at any rate, to frame them to hang on the parlour wall. But, nevertheless, don't set off on a tour, or even two or three days' sketching, without a block in addition to your book, for you often meet with subjects that a good block sketch will do more justice to than the page of a sketch book. Don't get into your head the idea that it is not the thing to rule any of your lines, on the contrary, when you are on a sketching tour, carry a small T square. You can square off from the side of your book or sketch block and get through your straight line work in much less time and with better results than are otherwise attainable, except with great labour.

You may see examples of this kind in my sketches of the transepts of Lincoln and York Cathedrals in England, and at Autun, in Burgundy, among the sketch books on the table.

Now just a few notes in detail as to the materials useful for an architectural student sketching in pencil, and I have done. I say pencil because it is the handiest and most useful medium for the study of architecture, and this paper generally refers to that particular branch of sketching. You want a solidly-made sketch book, about 10 in. by 8 in., for use when you set out for the express purpose of sketching, but you should at all times carry some sort of a sketch book in your pocket; one of about six or seven inches by four and a-half inches is a convenient size, so that you always have it at hand for use on any occasion; and never be without a two-foot rule.

The paper in your books should have a smooth surface; it may be quite common, such as cheap writing paper,

I like it almost glossy. It is best that you should select your paper and have your sketch book and block specially made up; you can't buy suitable books, or blocks with suitable paper, and, moreover, the books you buy are seldom of the size or shape you want, and they haven't stiff covers, which is a necessity, as you have much sketching to do while standing, or on a ladder, or on a ridge of a roof, or possibly lying on your back looking at a ceiling. And, moreover, the books you buy are very badly bound, and they soon fall to pieces; my small pocket sketch books have been handled without harm for well over twenty years, but no ready-made ones would stand the wear.

An H.B. pencil is, perhaps, the best, and you only need the one for general use if your paper is right. A pair of pocket compasses is also useful, and you want a camp stool and sketching block, as before mentioned, of about 18 in. by 12 in., and an umbrella to keep the sun or the rain off your work, as well as a T square, all of which (except the stool and umbrella) will go into a good big sort of poacher's pocket inside your coat, or may be done up in straps with a handle. A soft piece of rubber, too, you may want, but try to forget you have it, and never use it if you can avoid doing so.

Now, in conclusion, let me say that I know of nothing in the education of an architect that will help you more than the diligent patient practice of sketching constantly till it becomes a habit with you, and when you come to design you will find that your sketch-books will be your best books of reference, that they contain a great storehouse of knowledge and helpful records of the best things you have seen, as up and down the world you went, hither and thither, the while the milestones of life rattled by. For, believe me, your sketch-books will give you joy in the making, will foster memories that will become dear and precious to you for your whole life long, and will give you pleasure in the contemplation of what you have done, and comfort in the greater facility with which you will produce that good work in your profession that is the goal and summit of our highest aspirations.

### WAR MEMORIALS.

It may be hoped that the inevitable demand for memorials to those killed in battle, many of which will no doubt take the form of sculpture, will be met by some genuine inspiration that shall flower in spontaneous expressions of our pride and grief. But it is hardly to be expected. Genius of this kind is so much rarer than even heroic deeds that it can seldom coincide with them. But, says E. F. C., in an article in the "Manchester Guardian," even without great original genius, and without an academic imitation, it may be possible, by a consideration of the great war monuments of the past, to save ourselves at least from the frigid flamboyance that still travesties the Napoleonic wars, and yet not to lapse into that mere timidity which in later years has tried to escape notice in low relief. Such monuments are either public or private; and the latter, again, fall naturally into two classes—those to individuals, where some degree of portraiture is required, and those to groups, members of a regiment, a school, a workshop, or a parish, where the treatment would be more general.

This desired generality obviously suggests for consideration the tomb reliefs of the Greeks, who seem to have chosen them even for individual monuments, admitting probably some slight characterisation but seldom any realistic portrait, since they preferred the direct expression of feeling to any historical delineation. In this respect, no doubt, the eighteenth century considered itself a follower of the classics. No stranger instance of artistic blindness could be discovered. Its method is almost wholly allegorical, at best symbolic, while from the great Greek stelai mere allegory and symbolism are almost wholly absent. The nude officer who condescendingly shakes hands with Victory (or is it Fame?)

over a cannon; the stout one who staggers even Fame (or is it Victory?) by expiring in her arms; General Picton's Roman helmet, which would be absurd even if we had not seen at the United Services Museum his authentic chimney-pot beaver; the laurel-crowned busts mauled by agitated Neptunes and tearful nymphs—many of these are technically respectable, many commemorate really great men; but even those that are not ridiculous strike us as conventional, expressing vanity rather than real pride or sorrow, and being erected only too truly at the public expense.

The Greeks were simpler, and, even while still archaically stiff, triumphantly more successful. An armed man leaning on his spear or playing with his dog; a young warrior riding in the battle or sitting beside his armour on the prow of his ship; an older man seated holding a youth's hand, or standing and looking with infinite sadness into his carelessly smiling face—so they did honour to those who died at Marathon for the freedom of Greece, or at Syracuse for the violet-crowned glory of Athens.

The stele last mentioned is one of the most moving masterpieces of sculpture, yet it has in it so little that is topical that it might almost represent the sorrow of Age for its own lost youth, or the tears of the world for strength that passes away like a shadow and beauty that is no stronger than a flower. To adapt this style to our own purposes is a harder matter than to approve it. No laws can be laid down for the artist, but it seems that, if we are not to be distracted by irrelevance, he must avoid both the antiquarianism that would masquerade our sons in drapery and the niggling realism that delights in a prominence of belts and buckles. When Benjamin West painted "The Death of Wolfe" in contemporary dress, the other Academicians murmured that it should have been treated in the nude "Homeric" manner, but the artist was defended by Sir Joshua Reynolds.

Much greater individuality of character is to be found, as we should expect, in Renaissance monuments, which in this resemble the classical style less than do the impersonal knights and crusaders of the Middle Ages. To any sculptor undecided upon the treatment of his subject there could be no more helpful study than the contrast between the method of the Greeks and the early cinquecento effigy of Guidarello Guidarelli "Guerrier Ravennate." The Athenian seems to aim at expressing the sorrow of the bereaved, and he succeeds by representing the lost son or husband in calm health and beauty in the hour of triumph; it is the survivors whom he shows as stricken *tendentesque manus ripa ulterioris amore*. The Renaissance sculptor, heir to the Gothic religious feeling, is rather preoccupied with some solemn change that has come over the dead man, who is therefore carved motionless and recumbent in death or deathlike sleep. If the difference is due to religion, it is strange that the effect of Christianity has been rather to disillusion us with this life than to make us in love with another. Here is little rapture of resurrection, but peace after much fighting and a great rest after toil.

Perhaps more congenial to the artistic tendencies of our time than either of these schools is the style of the Roman military cippus, like that of Pintaius at Bonn or that from Colchester in the Oxford Ashmolean. The appeal here is forcibly direct, violent to the verge of crudeness. Superficially the effect seems to be gained by a realism which refuses to represent the simple soldier otherwise than as a soldier simply. But in truth this is a melodramatic idealisation from which the more artistic Greek refrained. He could not but see the warrior as a man, and indeed but lately a child, with parents, lovers, children of his own, and subject to human affection. To the more abstract-minded Roman a man was what he was called, and above all a soldier must be incredibly soldierly: stolid, formidable, a little

stupidly overbearing, but triumphantly compact of military virtues, and in the end, to those who can afford to smile at him, rather lovable. When this method was combined with a fine academic Hellenism, as in Trajan's Arch at Beneventum, though each is good in its way, the result is hardly harmonious. Either the group of gods or that of the recruit-measuring would please us better apart from the other.

When we turn from monuments expressing some personal feeling of survivors for an individual or a group, to what may be called official or public memorials, designed to embody in sculpture the triumphs and losses of a people, the contrast between antiquity and the Middle Ages remains instructive. As the Greeks had limited themselves to a certain generality in commemorating persons, the Renaissance aimed at some degree of individuality in honouring the State. As Ægina recorded a victory, whose very name is now controversial, by pediments where legendary Greeks and barbarians battle beneath the arbitrament of Athene, Venice personifies her glory in the statues of Bartolomeo, Colleoni, and Gattamelata. If this comparison be accepted as a just one, it must be granted, in spite of Ruskin's unbounded eulogy of Verrocchio and in spite of the archaism of the Æginetan sculptor, that here, still more decidedly than before, Greece triumphs. The equestrian statues are grand indeed; but for excitement and pathos—in a word, for beauty—the Greek vision of rescuers and wounded surpasses them almost as far as they surpass our Nelson Column or Frederick the Great's statue in Unter den Linden. There is no personal reference, the facial expression is little or nothing, but the action and passion are completely individual and therefore moving. Even where personification is confessed, as in the victories of Olympia and Samothrace or the temple of Niko Apteros, there is, strictly speaking, no symbolism. We are not asked to let this figure stand for triumph because she holds a laurel; the sweep of the wings, the swirl of drapery, the buoyance of the brave limbs are instances of victory itself; rather, they show us, better than any actual experience of conquest could, what victory is, what it must be like. If anyone should still think that the mark of Greek sculpture is *Allgemeinheit* in the sense of abstraction let him compare the Samothracian "personification" of sea-power with Roubiliac's celebrated monument to Sir Peter Warren: "Hercules places the bust of the Admiral on a pedestal while Navigation looks on with mournful admiration" (Baedeker).

It is with something of a shock that we discover, on turning to recent work, how few are the examples we would wish studied by those who are to record our own losses and triumphs. The moderns have often been content to imitate those ancient erections which demand more from the engineer than from the artist: bare pyramids or obelisks, gigantic columns with the spiral sculpture omitted, at best triumphal arches where we must often deplore its presence. The use of sculpture as decoration, a delicate enrichment of the fabric, which may yet reveal its purpose to a studious eye, seems an art lost since the Romans so happily married it to their genius for massive architecture in the Arch of Titus. Among the best modern works must be put Alfred Stevens's monument to Wellington, finely architectural and in a direct line of descent, through the great Venetian sculptures, from Can Grande and the other Scaligers at Verona. Here we have the recumbent effigy, the equestrian statue, and symbolic groups in combination. But, though designed for the spot where it now stands, it is deplorably cramped and hidden by the great piers of St. Paul's, and seems to crave the scale and sunlight of a piazza. It would almost seem as if the Dean, who opposed the equestrian completion on ecclesiastical grounds, was the unconscious channel of artistic truth. For all the sculptor's talent, the group of Valour conquering Cowardice seems rather well conceived and executed than sincerely felt, and is more apt to arouse

favourable comparison with the surrounding classicism than positive artistic enjoyment. The neighbouring recumbent figure of General Gordon fails to attain much dignity or largeness.

The works of Rodin, and of Mestrovic in some of his simpler moods, though each in his degree perhaps likely to be as dangerous a school as that of Michael Angelo himself, are in the right heroic strain. It seems indeed now that it must all the time have been war in which "Le Penseur" was reflecting and which tormented the sleepers on the Medici Tombs. Of recent private or corporate memorials I cannot call to mind a single eminent success. All seem to fail in the final tests of naturalness and dignified simplicity. The sculpture in this year's Academy did surprisingly little, at least as regards personal monuments, either to confirm or modify this conclusion. The sculptural sketches shown by the Civic Arts Association at the Royal Institute of British Architects are of the slightest.

## HOUSING AND TOWN PLANNING, 1915-16.

THE Local Government Board have just issued that part of their Forty-fifth Annual Report which relates to matters incidental to the administration of the Housing of the Working Classes Acts, 1890 to 1909, and of Part II. of the Housing, Town Planning, &c., Act, 1909, which deals with town planning.

The report deals chiefly with the year ended on March 31, 1916, and naturally divides itself into two principal sections—namely, housing of the working classes and town planning.

### SECTION I.—HOUSING OF THE WORKING CLASSES.

In their last report they referred to the effect of the war in regard to proceedings under the Housing Acts. During the year to which the present report relates there has been a very marked diminution in the activity of local authorities generally in housing matters, and the Board have not regarded it as expedient, in the circumstances of the times, to undertake much of the work which they should have felt called upon to perform in normal times, or to bring pressure to bear upon local authorities except in very special cases.

The clearance of insanitary areas under the provisions of improvement schemes necessarily involves the acquisition of a considerable amount of property, frequently including trade interests and property not in itself of a specially insanitary character as well as much that is insanitary, and it is usually, therefore, an expensive process. It may be stated generally that, in response to the appeal of the Government for the restriction of the expenditure of local authorities within the narrowest possible limits, schemes of this nature which are in course of execution, and which cannot, having regard to the existing obligations of the authorities concerned, be altogether suspended, are being proceeded with as slowly as is practicable.

### Improvement Schemes Dealt With During the Year.

Reference was made in the last report to an application they received from the Town Council of Hartlepool for the confirmation of an improvement scheme relating to two unhealthy areas known as the Cleveland Street North and the Cleveland Street South unhealthy areas, together some 8,452 square yards in extent and including a considerable amount of unoccupied and ruinous and insanitary property. After local inquiry the Board decided to confirm the scheme, and an order giving effect to this decision was issued on November 5, 1915. Subsequently, in reply to an inquiry from the Town Council, the Board stated that, while they had not thought it advisable to withhold confirmation of the scheme, they should not be in a position during the present crisis to sanction any loan for the execution of the scheme, but that they were not aware of any reason why the Town Council should not proceed with negotiations for the purchase of properties

in the areas affected and enter into provisional agreements in connection therewith.

The Board received an application from the Town Council of Eccles for confirmation of an improvement scheme relating to two unhealthy areas, together some 34,370 square yards in extent, known as the King Street and College Croft areas. A local inquiry was held by one of their inspectors into the subject-matter of the application, but further action was deferred until after the end of the year.

During the year the Board issued orders, on the application of the local authorities concerned, modifying improvement schemes under this part of the Act of 1890 as follows:—

(i) *Nottingham City*: Carter Gate and Manvers Street area. Under this scheme as originally sanctioned the Town Council were precluded from demolishing more buildings on the area than on June 15, 1912, provided accommodation for eight hundred persons of the working class until they had caused dwellings suitable for the accommodation of five hundred such persons to be erected and completed fit for occupation. In accordance with this provision part of the area was cleared in readiness for the commencement of building operations, and the Town Council made formal application for sanction to a loan for the provision of the dwelling accommodation which was a necessary preliminary to further demolition; but in view of the necessity for restricting the expenditure of local authorities the Board considered that the proposed outlay should be postponed. It was strongly represented by the Council that many of the houses remaining on the area were in a most insanitary and deplorable condition, and in the interests of public health ought to be demolished at once. As this contention was confirmed by one of the housing inspectors, and as it further appeared that the occupants of the dwellings in question would at present have no difficulty in obtaining suitable accommodation in the vicinity, the Board modified the scheme so as to enable the Council to demolish forthwith all the properties in the area which they had acquired on or before August 24, 1915, and which had not been demolished. These comprised a number of the worst of the dwellings on the area.

(ii) *Barnes Urban District*: Malthouse area. The scheme was modified so as to permit the demolition of seven cottages which under the original scheme were to have been repaired and retained in the hands of the District Council.

(iii) *London County*: Tabard Street, Grotto Place, and Crosby Row areas. The scheme was modified so as to permit the immediate demolition of six properties included within the area of the scheme which, according to the terms of the order confirming the scheme, were not to be demolished until other accommodation had been provided upon another part of the area, and the demolition of twelve other properties at any time prior to March 25, 1924. This modification was made in order to facilitate a proposed exchange of land between the Council and the owners of certain properties included within the scheme.

Application was subsequently made by the London County Council for a much more extensive modification of the scheme. Under the terms of the order confirming the scheme the Council were authorised to clear the areas comprised therein in five sections, the demolition of the buildings in the second and succeeding sections not to be proceeded with until accommodation had been provided upon the cleared site or sites for specified numbers of persons of the working class. The Council argued that owing to the restriction of capital issues by the Treasury the erection of new dwellings had been and would be seriously retarded, and that in the absence of some modification of the order the result would be that the Council would be compelled to maintain for a more or less indefinite period a large amount of insanitary and dilapidated property. They, therefore, applied for power to demolish some 270 properties in various sections of

the areas, these representing some of the worst of the dwellings in the areas which could not reasonably be kept occupied or be maintained in tenable condition without undue cost. Less than one-sixth of the houses proposed to be demolished were inhabited. It was anticipated that the cost of demolition would be more than covered by the sale of old materials, &c. After being satisfied that the persons who would be displaced from the houses to be demolished should have no difficulty in finding accommodation within a reasonable distance of the areas, the Board decided to comply with the application of the Council and an order giving effect to this decision was issued on April 12, 1916.

#### *Returns as to Proceedings of Local Authorities.*

Application was made as usual for the account which every local authority is required by Section 44 of the Housing of the Working Classes Act, 1890, to present annually as to its proceedings under Part II. of that Act, and for the statement as to action taken by the authorities under Section 15 of the Housing, Town Planning, &c., Act, 1909; but in view of the exceptional character of the times and the difficulties as regards staff, &c., in which many of the local authorities were carrying on their work, the Board felt that they could not reasonably press them for the information. As a result, in nearly 300 cases the account or the statement in question was not received, and any useful comparison of the figures with those for former years is therefore out of the question. The particulars furnished by the remaining 1,500 authorities show that during the year ended March 31, 1915, no less than 42,728 houses were satisfactorily repaired after notice under Section 15 of the Act of 1909, 13,603 houses in respect of which action had been taken under Section 17 of that Act were made fit for human habitation by the owners without the issue of closing orders, and 2,775 houses were made fit by the owners after the issue of closing orders.

With a view to economy, and having regard to the circumstances mentioned above, the Board have decided not to ask for the account and statement in question in respect of the year ended March 31, 1916. A clause relieving local authorities during the continuance of the war and thereafter for such period not exceeding one year as may be fixed, from the necessity of presenting the account required by Section 44 of the Act of 1890 has since been included in the Local Government (Emergency Provisions) Act, 1916.

In connection with this subject, reference is made to a circular letter which was issued to local authorities on August 4, 1915, impressing upon them the urgent need for strict economy in every branch of expenditure, whether capital or revenue. In that circular the President of the Local Government Board suggested that, "whilst not unduly relaxing the standard of public health administration in their area, local authorities should, as far as possible, refrain from requiring the execution of work the cost of which has to be borne by private individuals unless the work is urgently necessary for the removal of nuisances or the protection of health."

#### *Appeals as Regards Closing and Demolition Orders, &c.*

In all, sixty-four formal appeals were made by the owners of houses against notices to repair, closing and demolition orders, &c., under Part I of the Act of 1909, as compared with 111 in the year 1914-15. These sixty-four appeals, together with the thirty cases left over from the previous year, gave a total of 94 cases to be dealt with, and of these nine were upheld, six were dismissed after inquiry, four were either not entertained or were not formally determined on account of some flaw in the proceedings, no less than thirty-nine were abandoned by the appellants, and the remaining thirty-six were still under consideration at the end of the year.

#### *Effect of the War upon Building Enterprise.*

The last report had pointed out that, speaking generally, the war necessitated the postponement of the pro-



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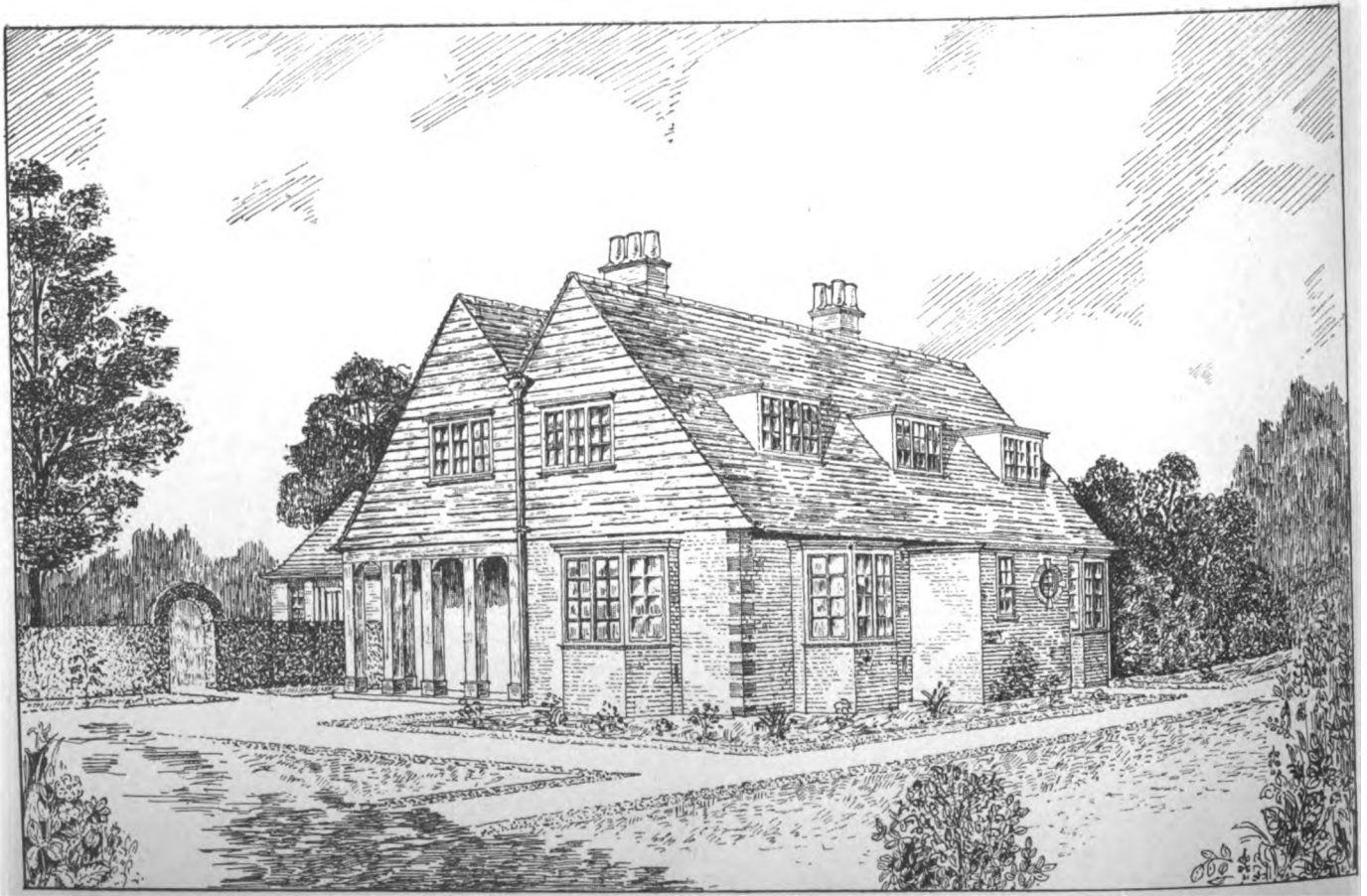
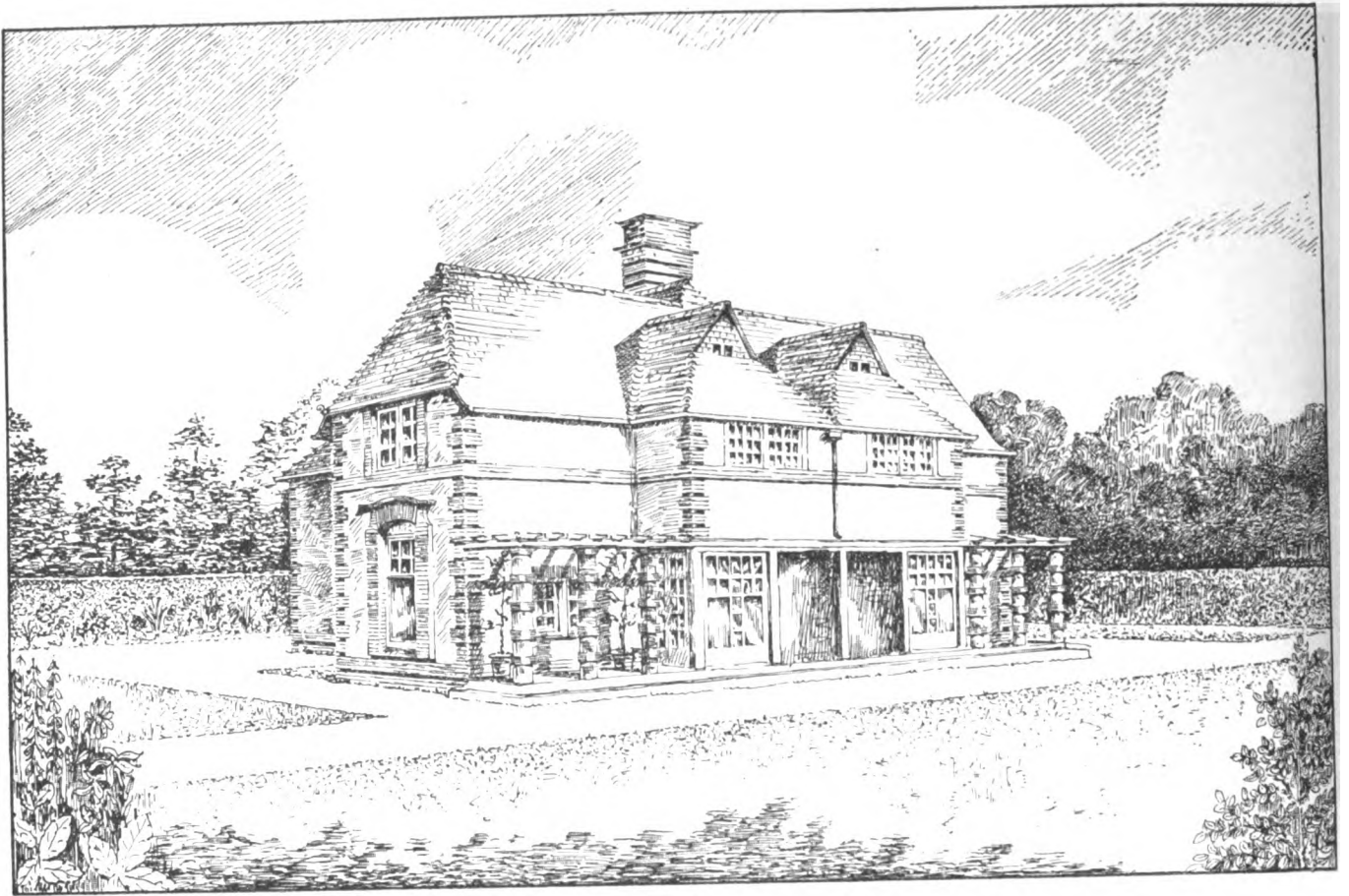
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vision of working-class dwellings by local authorities, and that the shortage of labour, the increased cost of certain building materials, and the increasing difficulty of financing building operations, had at the same time tended to restrict the building of such dwellings by private enterprise. Since that report was written the restrictive effect of the war on building has become still more marked, and it is to be feared that in many districts in England and Wales there exists, or will exist, on the conclusion of the war a very serious need for additional accommodation for persons of the working class. The provision of this accommodation will involve difficult problems, and the matter has been engaging serious attention for some time.

*Loans Sanctioned for the Provision of Dwellings under Part III. of the Act of 1890.*

Early in the year to which this report relates the Board found it necessary, in accordance with an agreement arrived at with the Lords Commissioners of his Majesty's Treasury, to refuse to sanction loans for the purposes of fresh schemes under this part of the Act except in cases where the dwellings were urgently needed in connection with war requirements. This principle, which—as local authorities are aware—was stringently applied, meant the postponement of schemes in a large number of cases, and involved a definite refusal to sanction loans amounting to £863,279 to seventy-five local authorities for the purchase of land and the erection of 3,397 houses. £85,101 of the amount mentioned was for the purchase of land and the erection of 362 houses by thirty rural district councils.

During the year the Board sanctioned the borrowing by twenty-four local authorities of sums amounting in all to £502,904 for the purposes of Part III. Of this £5,171 represented the total of small loans sanctioned to fifteen local authorities for the purpose of meeting excess expenditure on schemes which had been already executed or of defraying expenses actually incurred in connection with the acquisition of land or the preparation of schemes subsequently postponed on account of the war. As regards the remainder of the total amount sanctioned, £462,930 was required by six urban authorities for the purchase of approximately 108 acres of land and the erection of 1,917 houses or tenements, and £34,803 by three rural district councils for the purchase of some fourteen acres of land and the erection of 154 houses. The rent proposed to be charged varied from 4s. 0d. to 13s. 6d. per week.

In all of these nine cases except one, where a small loan of £800 was sanctioned under special circumstances to a rural district council early in the year, the houses to be provided were urgently wanted in connection with war requirements, and in several of them the schemes were the outcome of consultation with the local authorities concerned undertaken by the Board on behalf of the Admiralty or the Ministry of Munitions, who in view of the extraordinary conditions and the abnormally increased cost of building secured grants from imperial funds towards the cost of the schemes. The amount of the grant varied according to the circumstances of each particular case, but in no case exceeded 25 per cent. of the cost of the scheme, and in every instance the contribution was conditional upon the reservation of the dwellings, for a certain fixed period, for the employees in whom the department concerned was more particularly interested.

In one of the cases in which a grant was agreed to be made the scheme has since been abandoned and the sanctions to the loans have been cancelled.

In another instance it was arranged that a firm of manufacturers should contribute £10,000 towards the cost of a scheme for the erection of dwellings.

A statement of the loans sanctioned to local authorities for the purchase of land and the erection of houses under Part III. of the Housing of the Working Classes Act, 1890, since the passing of the Housing, Town Planning, &c. Act, 1909, together with the number of houses (over

13,000 in all) proposed to be erected by means of such loans, is given in a table.

Under Section 3 of the Act of 1909 the Board recommended the Public Works Loan Commissioners during the year to make advances amounting to £404,915 to twenty-one local authorities for the provision of dwellings under Part III. of the Act of 1890, £365,229 of this sum being required by ten urban authorities and £39,686 by eleven rural authorities. Their recommendation is not necessary as regards loans the period for the repayment of which does not exceed thirty years.

SECTION II.—TOWN PLANNING.

As in the case of housing so in regard to town planning the deterrent effect of the war is evident. Many local authorities who had been actively engaged in preparing town-planning schemes, or considering proposals for schemes, have been compelled to curtail their consideration of the matter owing to seriously depleted staffs. Although in some respects the time might be regarded as favourable for the preparation of schemes, the Local Government Board have for the reason indicated not considered it desirable to press local authorities unduly to go forward with their schemes, but they think it is very desirable in view of probable developments after the war that local authorities should take every possible opportunity to advance their schemes, in order that when the opportunity for building occurs progress with building operations may not be impeded.

A statement showing the districts the local authorities of which had at March 31, 1916, been authorised to prepare or adopt schemes, the date of the authorisation, and the approximate area included in the proposed scheme, and indicating whether the area includes any part of the district of another local authority is contained in the Appendix to this report.

In nine of the cases in which authority to prepare schemes has been given, schemes were subsequently submitted for approval. Of these nine schemes three were prepared by the Corporation of Birmingham, and the other six by the corporations of Rochdale and Chesterfield, the urban district councils of Ruislip-Northwood, North Bromsgrove, and Otley, and the rural district council of Hunslet.

Two of the Birmingham schemes, viz., the Quinton, Harborne, and Edgbaston, and the East Birmingham schemes, and also the Rochdale (Marland), the Ruislip-Northwood and the North Bromsgrove (Rubery) town-planning schemes, have passed through all their stages and have been finally approved.

*Authority Given for Preparation of Schemes during Year 1915-16.*

During the year ended March 31, 1916, we gave authority for the preparation of eighteen schemes by the following seventeen local authorities in respect of areas containing more than 40,000 acres of land, namely:—

Corporations (9) (10 schemes).

Birmingham, Colne, Croydon, Leeds, Mansfield, Newport (Mon.), Nottingham, Sheffield, Southend-on-Sea (two areas).

Urban district councils (6) (6 schemes).

Beckenham, Bentley-with-Arksey, Little Hulton, Longbenton, Seaton Delaval, Whitley, and Monkseaton.

Rural district councils (2) (2 schemes).

Grimsby, Wrexham.

In several of the cases referred to it was found necessary to modify the areas of the proposed schemes by the exclusion of certain lands. The Board state it is their desire to take as broad a view as possible in regard to land which may be included in a scheme, but it still does not seem to be generally realised that it is necessary that a case should be made out under Section 54 (3) of the Act of 1909 for including land built on or land not likely to be used for building purposes.

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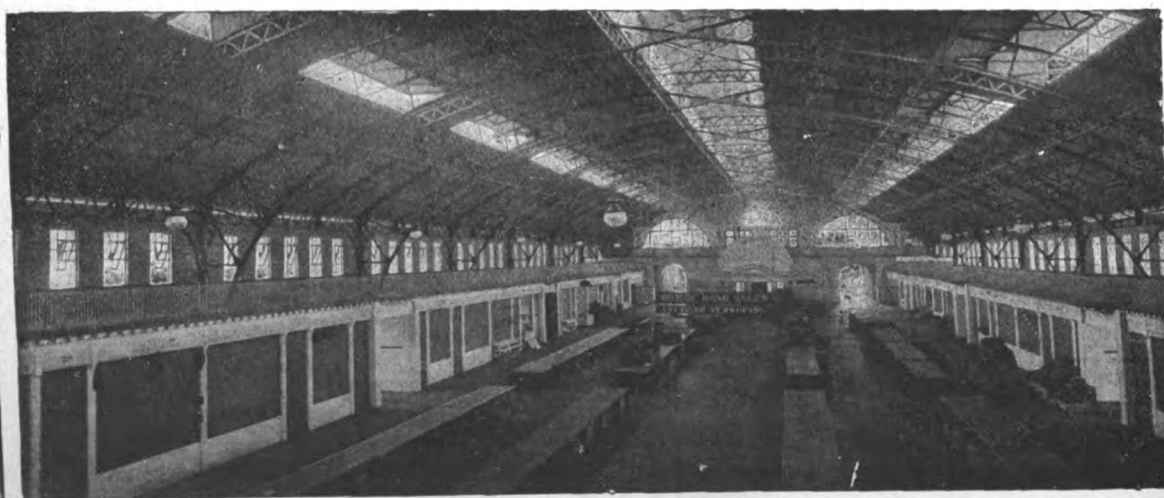
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*Applications under Consideration.*

In addition to the cases above mentioned the Board had under consideration at March 31, 1916, eleven applications by ten local authorities for authority to prepare schemes in respect of areas comprising about 29,000 acres of land.

Corporations (4) (4 schemes).

Salford (2,290 acres), Sheffield (142 acres), South Shields (2,454 acres), West Hartlepool (5,332 acres).

Urban district councils (5) (6 schemes)

Bredbury and Romiley (two areas of 3,986 and 164 acres), Cheadle and Gatley (4,232 acres), Earsdon (4,574 acres), Hale (1,010 acres), Southgate (2,980 acres).

Rural district council (1) (1 scheme).

Wrexham (2,251 acres).

In some of these cases authority to prepare schemes has been given since March 31, 1916.

*Other cases in which notices have been given.*

Before an application can be made for authority to prepare a scheme or to adopt a scheme prepared by owners certain procedure under the Town Planning Procedure Regulations must be taken, including the giving of notices to persons interested. In addition to the cases above mentioned preliminary notices had been given under the Regulations by the following twenty-five local authorities with a view to application being made for authority to prepare schemes, viz. —

Corporations (11).

Birkenhead, Chesterfield, Chorley, Coventry, Derby, Middlesbrough, Ramsgate, Reigate, Sheffield, Shrewsbury South Shields.

Urban district councils (10).

Acton, Barnes, Barry, Chiswick, Finchley, Hayes, Hendon, Wembley, Willesden, Wood Green.

Rural district councils (4).

Doncaster, Easing, Tadcaster, Warrington.

*Other Cases in which Proposals for Schemes are under Consideration.*

In a large number of other cases consideration of the matter by the local authority has reached a stage practically equivalent to a decision to proceed with a scheme, and in numerous other cases the question of preparing a scheme has been under consideration. In many cases, however, the matter has been deferred during the present emergency.

**BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.**

**A LIST OF WORKS PROJECTED OR COMMENCED.**

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

**ENGLAND.**

**CHESHIRE.**

*Stockport.*—Proposed electricity generating Station, Millgate.

**DORSET.**

*North Mills (near Bridport).*—Buildings for Messrs. Hounsell, Ltd.

**ESSEX.**

*Great Warley.*—House, Combe Green: additions, for Mr. J. F. Lescher.

**HEREFORDSHIRE.**

*Lydbrook Junction.*—Works for Messrs. H. W. Smith & Co.

**KENT.**

*Bromley.*—"Brockhampton," Bromley Common: additions. Messrs. T. Crossley & Son, builders.

"Widmore Court," Chiselhurst Road: additions. Mr. C. H. B. Quennell, F.R.I.B.A., architect, 21 Great Peter Street, London, S.W.

Buildings, Woldham Road. Messrs. H. M. & W. Grellier, F.R.I.B.A., architects, 6 Queen Anne's Gate, London, S.W.

**LANCASHIRE.**

*Accrington.*—Manager's house, Broad Oak, for the Calico Printers' Association.

*Blackburn.*—House, Pollard Street, for Mr. W. Wearden.

Hole House Mill: warehouse for Messrs. Smith & Forrest.

Witton Mill: additions to warehouse, for Messrs. Cotton & Walsh.

Works: addition, for the Blackburn Bobbin Co.

**LINCOLNSHIRE.**

*Grantham.*—Shop, Watergate: additions and alterations, for Mr. H. Collard.

Earlesfield Works: warehouse, &c., for Messrs. A. & J. Shaw, Ltd.

**MIDDLESEX.**

*Willesden.*—Works: rebuilding, for the Willesden Paper and Canvas Works.

**STAFFORDSHIRE.**

*Lichfield.*—The City Brewery: women's mess-room.

Two houses, Levett's Fields. Mr. J. R. Deacon, builder, Lombard Street.

*Stoke-on-Trent.*—Proposed Baptist Church, Butt Lane.

**SUFFOLK.**

*Ipswich.*—Proposed Carnegie Free Library, Northgate Street. (£20,000.)

**SURREY.**

*Richmond-on-Thames.*—No. 2 Gloucester Gardens: conversion into flats. Messrs. Jarman & Co., builders, Eton Street.

Motor garage, Grena Road; also

Additions and alterations to the Old Drill Shed and premises, Townshend Terrace, for the White & Aircraft Co., Ltd.

**SUSSEX.**

*Bognor.*—Wesleyan Church: proposed reconstruction.

**YORKSHIRE.**

*Carleton (near Pontefract).*—House, for Mr. W. Wood.

*Croft.*—Premises: alterations for Darlington Co-operative Society, Ltd. Messrs. Kellett & Clayton, architects, High Road Chambers, Darlington.

*Huddersfield.*—Proposed Corporation houses. (£4,000.)

**WALES.**

*Burry Port.*—Proposed 200 Council houses for staff and workmen.

**SCOTLAND.**

*Aberdeen.*—Offices, &c., South Esplanade East. Messrs. Sutherland & George, R.I.B.A., architects, 26 Crown Street.

Stores, &c., Pocra Quay, for Messrs. A. Hall & Co., Ltd.

*Dundee.*—Property, Foundry Lane: alterations for Mr. A. Rattray.

James Park Foundry, Albert and Maitland Streets: extension for Messrs. Donald Brothers.

*Dunfermline.*—Eighty-one houses, Backmarch, Rosyth, for the Scottish National Housing Co.

Board-school, Rosyth. (£18,000.)

*Glasgow.*—Grist-house, Muirhead Street, South Side: addition, for the Distillers' Co., Ltd. (of Edinburgh).

Premises, Caxton Street, Anniesland: additions, for Messrs. Barr & Stroud, Ltd.

Fitting Shop, Fairfield Street: extension, for the Fairfield Shipbuilding and Engineering Co., Ltd.

No. 133 Helen Street, Govan: addition, for the Howden Boiler and Armaments Co., Ltd.

**IRELAND.**

*Inniskeen.*—Alterations to premises. Mr. J. F. McGahon (of Dundalk), architect.

*Red Bay (Co. Antrim).*—R.C. Church. Mr. W. J. Moore, architect, 35 Royal Avenue, Belfast.

THE Royal Academy Winter Exhibition in January and February will be an exhibition of original drawings and prints by living artists invited by the committee, in which the Royal Academy Council will be assisted by the presidents of the principal societies interested. It is hoped that much of the work will be for sale in aid of the Red Cross Society. The exhibition will also include a small retrospective exhibition of prints, and an exhibition of modelled designs for memorials in sculpture.

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# THE ARCHITECT

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## AFFORESTATION.

THE need for largely increasing our supply of home-grown timber requires repeated reiteration so that it may become so adequately realised that public opinion may goad on our lagging Government to take the necessary steps to bring into practical operation a wisely-ordered scheme of afforestation in Great Britain. The need for such a policy rests on three distinct grounds, economic, social, and military.

Economically, it is always to the advantage of any country to increase its national wealth by developing its resources in the production of raw material so long as this can be done without injuriously affecting a more profitable use of those resources. Now there are in Great Britain several millions of acres of land, the extent of which it still needs a careful survey to determine exactly, on which land it is more profitable to grow timber than mutton or game. The value of this land to the community has not been fully exploited so long as it is left in such a state of undevelopment as to produce part only of the wealth of which it is capable.

The class of land to which these considerations particularly apply is that now to be described as mountain or heath land used for grazing or deer forests. There are large tracts of such land in Scotland, Wales, and the north of England. Its freehold value is usually under £2 per acre, and in some cases less than £1, and the rental value ranges from 2s. per acre to 6d., or even less. The yield, if properly afforested, may be taken at an annual average of one ton of timber per annum, whilst the return in mutton is at present 15 lb. a year, and in game very much less. The difference in value between a ton of timber and 15 lb. of mutton represents therefore the potential increase of national wealth which afforestation would develop.

The social advantages to be obtained from afforestation will lie in the increased number of persons that can be profitably and healthily engaged upon the land, so that instead of being sparsely populated, immense areas will be utilised in the healthy occupation of a considerable number. More employment will be provided, and the closer aggregation of those engaged in forestry and its associated industries makes for happiness and contentment in social conditions.

But it is with respect to military requirements and the defence of the country in time of war that afforestation is of paramount importance. Whilst we cannot hope to produce sufficient home-grown timber to render ourselves entirely independent of supplies from overseas, since to attempt to do so would necessitate the devotion to forestry of land that can be more profitably used for other purposes, we should reduce to the smallest dimensions our dependence upon imports for a material essential in military operations and in the prosecution of highly important industries. During war, as we have learnt by our present experience, ships cannot be obtained to import supplies in sufficient quantity, whilst there is always the possibility that enemy activities may be even more effective in the future than now in introducing an

element of uncertainty into transit, and there is also the fact that considerations of international exchange render it desirable to limit imports.

From the point of view of the building trade there is no ground for putting aside the demand for afforestation with the plea that the present war will be the last in which this country will be engaged at least for very many years to come, for the building trade, to say nothing of the country's requirements for pulp and pit-props, can absorb with advantage all the home-grown timber that it would be profitable or practicable to grow, and apart altogether from the demands of war the denudation of the world's supply of timber renders it desirable, even as a peace measure, that every acre of land in our country that can be wisely occupied by forests should be so devoted.

As it is in Scotland that the greatest area exists which in Great Britain is suitable for forestry, it is appropriate that the Royal Scottish Arboricultural Society should take a prominent part in the propaganda of afforestation, and that Society has put forward the case in the following resolution circulated to various Government Departments concerned and to members of Parliament:—

"The Council of the Royal Scottish Arboricultural Society, considering:

"1. That for many years the Society has been urging upon Government the necessity for adopting measures to promote afforestation in this country:

"2. That all our home experts in forestry, and such of the oversea experts as have visited this country, including the eight distinguished foresters who represented the leading Continental, Indian and Dominion Forest Services at the Society's Diamond Jubilee celebrations in 1914, have unanimously expressed the opinion that Scotland lends itself admirably to afforestation on a large scale, and that Government ought to give the movement the support necessary to bring this about:

"3. That in recent years successive Secretaries for Scotland have promised on behalf of Government that a Department of Forestry would be created in connection with the Board of Agriculture for Scotland, but that such Department has not yet been formed:

"4. That the Board of Agriculture for Scotland and the Development Commissioners have failed to make reasonable provision out of the funds under their control for the development of forestry in Scotland, and that it is therefore necessary that the new Department of Forestry, when formed, should be provided with a separate annual grant adequate for this purpose:

"5. That the area of woodlands in Scotland previous to the war was about 868,000 acres, or only about 4 per cent. of the whole land area, being the lowest percentage of the countries of Europe (except Ireland and Portugal), and forming a striking contrast to other countries on the Continent having from 17 up to as high as 53 per cent. of woodlands:

"6. That the annual value of the imports of timber into the British Isles previous to the war was about £40,000,000; that between 80 and 90 per cent. of the timber so imported consisted of coniferous or soft woods of which a large proportion could have been grown in this country, and if so grown would have provided healthy and remunerative occupation for a large rural population, and have prevented the present timber famine and the great shortage of tonnage from which the country is now suffering:

"7. That the war in which the country is at present engaged has directed particular attention to:—

"(1) The dependence of this country on foreign countries for timber of all kinds, but especially pit-wood and railway timber;

"(2) The greatly increased demand for all kinds of home-grown timber—which owing to the widespread devastation on the Continent is likely to continue long after the conclusion of the war;

"(3) The large areas of home woods that are being cleared to meet that demand, including young, thriving plantations, prematurely cut for pit-wood, for which they were not intended;

"(4) The improbability that all or even a large proportion of these areas will be voluntarily re-planted, with the result that the already relatively small extent of woods in this country will be alarmingly decreased;

"(5) The very large areas of comparatively poor land in the country which would be more economically used in growing timber crops than as at present used;

"8. That, during their various excursions abroad, the members of the Society were much impressed with what had been successfully done by the various Continental countries visited in combining schemes of small holdings with afforestation to the great advantage of both:

"9. That afforestation not only provides employment for a considerable population at the outset, but ultimately for a very large population in connection with subsidiary industries such as saw-milling, wood-working and other rural industries:

"10. That at the close of the war a large number of men will be returning home who may not be able to resume their former occupations, and would prefer to settle upon the land if they could be assured of a healthy outdoor life and a comfortable home, and that the return of such men will form a peculiarly suitable opportunity of making a beginning with the afforestation schemes which are so necessary to provide timber for our national requirements:

"*Resolved*, that it is necessary, in order to provide for the nation's future requirements of coniferous timber and such hardwood timber as can be economically grown in this country, and also to afford suitable and healthy employment for a large and ever-increasing rural population, that Government should now create the promised Department of Forestry in connection with the Board of Agriculture for the development of forestry in Scotland, with an adequate annual grant for the purpose, and should instruct the Department to prepare, without delay, schemes of afforestation, combined with small holdings and other rural industries, to be put into operation as soon as the war is over, so that advantage may be taken of the unique opportunity when returning soldiers, sailors and others are desiring work, to induce a proportion of them to settle on the land by offering them immediate and suitable employment in comfortable and congenial surroundings."

#### NOTES AND COMMENTS.

THE discussion in the House of Commons on the second reading of the Dublin Reconstruction (Emergency Provisions) Bill revealed the usual condition of things when Irishmen meet in conference. The Corporation of Dublin want the Bill, other prominent Dublin citizens and those whom they represent, including some of the property owners whose premises are needing reconstruction, are opposed to it. The real ground of difference, apart from the typically Irish attitude of being "agin the Government," appears to be that the business men of Dublin have a poor opinion of the Corporation; they trust neither its good faith nor its competence. Hence the property-owners of the devastated area feel a strong objection to a measure which places them very largely in the hands of the Corporation. Surely it should be possible, when the Bill is in committee, to incorporate such safeguards as may prevent the Corporation from misusing their power to the detriment of those who have suffered, without divesting them of the power to carry out a co-ordinated scheme of improvement of the Sackville Street area.

The figures which have been published in detail of the £12,061,000 paid for the hutting provided for the accommodation of troops and horses to some of our leading contractors for "services carried out by agents

of the War Department" are remarkable for the low percentage on prime cost of the amounts quoted as "Establishment charges" and "Commission." To some extent, possibly, the building of hutments admits of lower figures in these items than in the case of ordinary buildings and engineering contracts, but from our very considerable experience in these matters we hold the firm conviction that our leading contractors have shown a patriotic spirit in the terms they have accepted from the Government for war services which were indispensable, and which the existence of anything like a "ring" could have forced the country to engage at an enormously enhanced rather than reduced figure. The resources of the War Office could not possibly have provided the hutting accommodation so urgently required for our new Army for the sum of £24,500,000 without the co-operation of the organisation and business capability of our great contractors.

The appointment of Second-Lieutenant Muirhead Bone to make drawings at the Front for the historical record of the war is a step that might very well be supplemented by the engagement for a similar purpose of some of the hundreds of able architectural draughtsmen who are now with the Colours. We quite agree that Mr. Bone's position as a draughtsman is sufficiently established to guarantee a general acceptance of the appointment. Although his work has only been before the public some ten years, he has taken his place among the masters of etching whose works are collected by the State galleries of Europe and America. The particular feature of his work has been its imaginative understanding of constructed works in their creation and especially in their decomposition. Many of his best-known works are views of demolitions, such as his etchings of the destruction of St. James's Hall, Newgate Prison, and the obsequies of many humbler buildings.

A further letter to the "Aberdeen Free Press" from Mr. G. M. Fraser on the subject of Cumberland House brings forward two interesting points with regard to the building noted by two visitors who have practical knowledge of the building trade. These gentlemen, says Mr. Fraser, drew his attention to the fact that the granite stones used throughout, from ground to turrets, are all "out-lyers"—that is, not quarried stones, but merely boulder stones gathered from the moorland round the town, and dressed. This is the case with the granite of Machar Cathedral, and all our granite houses in Aberdeen prior to the second half of the eighteenth century. It so happens that the next house but one to the Cumberland House, in the Guestrow, is built of quarried stone, and has the date upon it "1810," which is fairly early for the class of work.

The other special point noted by the two gentlemen above quoted is that the slates used on one of the two turrets of the house are from Ballachulish, and those used on the other turret from the slate quarries at Fouldland. The roof of the house itself is flat and covered with lead, which enables one to examine very carefully the construction of the upper part of the building. And, relative to this, the lime, which is very hard and old, had been mixed with a coarse quality of sand or gravel, in which sea shells are plentiful.

A recently issued report of the Select Committee of the House of Commons on Publications and Debates makes mention of a suggestion that a number of volumes of an old edition of the Acts of Parliament of Scotland should be destroyed for pulp. It is quite true that pulp is one of the commodities of which the war has grievously affected the supply, but we think that the present price of waste-paper should not tempt owners of ancient books, limited in number, to part with them for pulping purposes, and we are glad to know that in this particular instance the valuable old volumes are to be preserved from that fate.



tinued their policy of assisting in curtailing capital expenditure and fresh borrowings by local authorities and others, in view of the necessity of preserving the capital resources of the country in the national interests. The effect of these restrictions has been very materially to reduce the amount advanced by the Board during the year. Of the new loans granted during the year, amounting to £1,152,716 (as compared with £4,973,855 during the previous financial year) no less than £554,328 represents loans under the Housing of the Working Classes Acts for providing dwellings for munition workers in various centres, leaving only £598,388 as the whole of the other loans, £16,532 of which sum was granted to county associations under the Territorial and Reserve Forces Act, 1907, the bulk of the remaining £581,856 representing unavoidable expenditure incurred in respect of contracts entered into before the war, only a small proportion being due to expenditure of urgent necessity for reasons of public health. The Public Works Loan Commissioners, during the financial year 1915-16, made 842 advances for sums amounting together to £1,864,224, as compared with 1,982 advances for sums amounting together to £4,698,602 in 1914-15. Of the sum of £1,864,224, £1,511,710 was advanced on security of local rates, and £352,514 on the security of property."

In a paper recently read before the Manchester Philosophical Society Professor W. Boyd Dawkins gave an account of the knowledge now obtained from the investigation of the lake village of Glastonbury.

The lake-dwellers of Glastonbury village lived in 80 to 90 round huts surrounded by a stockade and planted for security at the edge of the sheet of water now represented by the peat in the marshes extending from Glastonbury westward to the sea. The inhabitants smelted iron, and made various edged tools and weapons—axes, adzes, gouges, saws, sickles, bill-hooks, daggers, swords, spears, &c. They also smelted lead-ore from the Mendip hills, and made net-sinkers and spindle whorls. They probably carried on the manufacture of glass-beads and rings and other personal ornaments, and were workers in tin and bronze. It is likely that the beautiful Glastonbury bowl was made in the settlement, since unused rivets of the same type as those of the bowl have been commonly met with. They were expert spinners and weavers, carpenters and potters, using the lathe in both these industries. The discovery of a wooden wheel, with beautifully turned spokes, proves that they possessed wheeled vehicles, while the snaffle-bits of iron imply the use of the horse. Their commerce was carried on partly by land, and the possession of canoes gave them the use of the waterways. They were linked with other settlements by the road running due east from Glastonbury that formed a part of the network of roads traversing the country in the prehistoric Iron Age, more especially with the lead mines and the fortified oppida, or camps of Mendip and of the rest of the country. They were also linked with the Bristol Channel by a waterway along the line of the river Brue, and along this was free communication with the oppidum of Worlesbury, then inhabited by men of their race.

The lake villagers were undoubtedly in touch with their neighbours by sea and land. Their jet probably came from Yorkshire; their Kimmeridge shale from Dorset; the amber from the eastern counties, or from the amber coast south of the Baltic. The cocks for fighting were probably obtained from Gaul, and the oblong dice are identical with those used in Italy in Roman times. Some of the designs on their pottery are from the south, and the bronze mirrors are probably of Italo-Greek origin. The technique of the Glastonbury bowl is that of the goldsmiths of Mykenae. The whole evidence points to a wide intercourse with other British tribes, as well as to a commerce with those of the Continent, extending so far south as the highly civilised peoples of the Mediterranean. It falls in line with that offered by other discoveries recorded in other parts of Britain, in settlements

and tombs, by General Pitt-Rivers, Sir Arthur J. Evans, and others, proving that the inhabitants of Britain were highly civilised, and were not isolated from the high Mediterranean culture for some two hundred years before the Roman Conquest.

We may infer from the absence of Roman remains that the lake village was abandoned before the influence of Rome was felt in Somerset. All doubt, however, as to this point is removed by the recent explorations of Wookey Hole Cavern, where the group of objects in the lake villages was found in five well-defined layers underneath two superficial strata of Roman age, the latter dated by the coins, ranging from the time of Vespasian (A.D. 69-79) to Valentinian II. (A.D. 375-392). Here we have proof that the civilisation of the prehistoric Iron Age was pre-Roman, and that it ended in Somerset with the Roman Conquest. It has been traced in other parts of Britain so far back as 150-200 B.C.

The lake villagers were of pure Iberic stock, without admixture of other races. They belong to the small aborigines in Britain in the Neolithic Age, characterised by long or oval heads, who were conquered in the Bronze Age by the invading Goidels, and in the prehistoric Iron Age by the invading Brythons, both of whom have left their mark on the topography of the district by river names, such as the Axe (Goidelic), and the Avon (Brythonic), for water, and the hill names such as Dundry (Goid) fort, Mendips mean (Bryth) stone, Pen (Bryth) hill. From these it may be concluded that the language of the villagers was near the Welsh. They were related to the Silures, the ruling tribes in South Wales in Roman days.

The village was sacked, and as the skulls exhibited show, the inhabitants had been massacred, probably during the conquest of the region by the Belgic tribes, whose further progress was arrested by the Romans. This remarkable discovery is being followed up by the examination of another lake village at Meare, on the same waterway, and belonging to the same pre-Roman age.

## ILLUSTRATIONS.

### "TILLYLOSS," DUNDEE.

THIS house, which was designed by Messrs. Maclaren, Sons & Soutar, is the property of Mr. Robert R. Smith, for whom it was erected in 1910.

Externally the walls are of Dumfriesshire stone, finished rough-cast. As regards the internal treatment, oak finishings have been largely introduced into the principal rooms. In the hall oak was selected for the dado, with upper parts finished in white. For the fireplace narrow-faced bricks have been used. The walls of the drawing-room have a paper filling, with plaster frieze; and the chimney-piece, cabinets, and floor are of oak. In the library the upper walls are treated with a checked pattern paper, with dado of oak. The fireplace is of stone, set with a metal canopy. All the fireplaces were made by the Scottish Guild of Handicraft, from special drawings supplied by the architects.

Forming an interesting and unique feature of the scheme is the garden house. The roof is covered with old Fifeshire pan tiles, and internally a panelling treatment has been carried out in Australian pine left the natural colour of the wood.

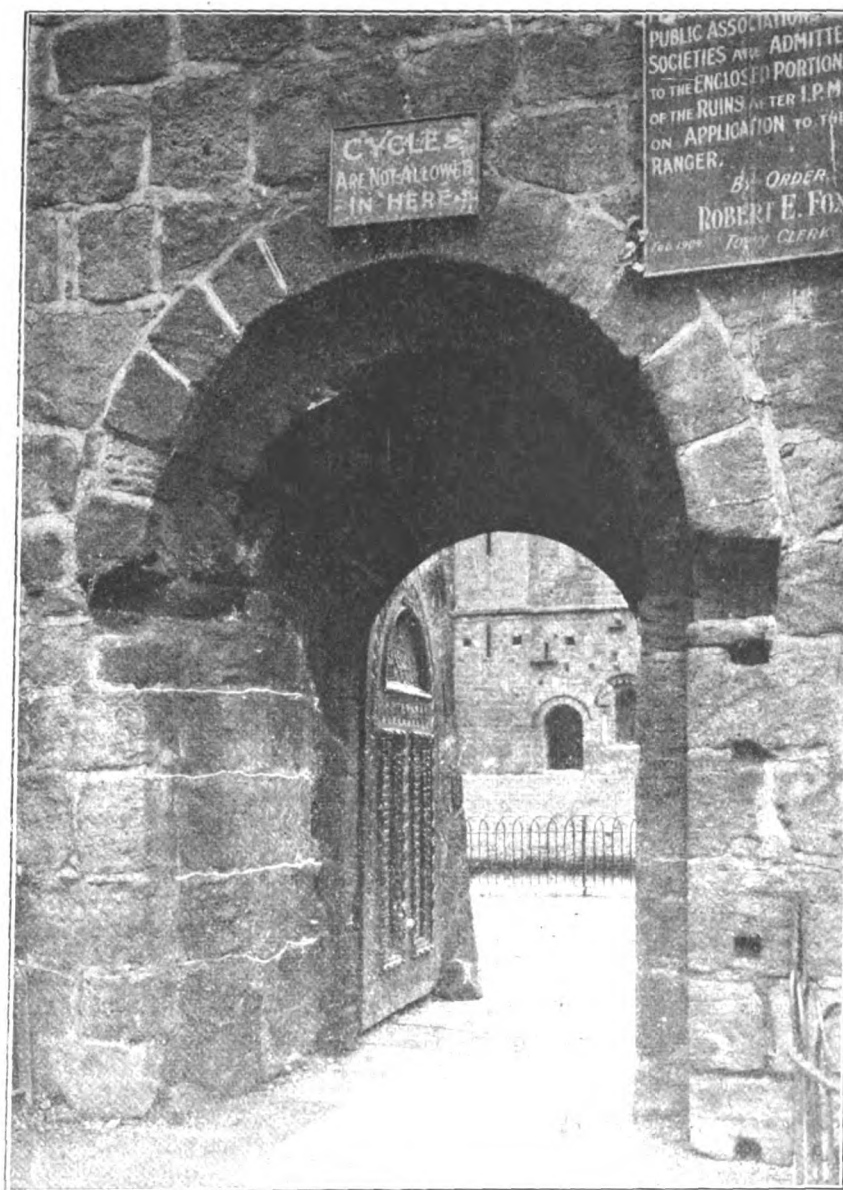
### "NETHER CABERSTON," WALKERBURN, PEEBLESHIRE.

THESE illustrations show exterior and interior views of this house designed for Mr. J. K. Ballantyne by Mr. James B. Dunn, F.R.I.B.A.

The exterior is built of whinstone rubble in variegated colours with dressed stone oriels and slated roof.

Dealing with the principal public apartments, the drawing-room has panelled walls painted white, and a modelled plaster ceiling of Adam design. There is an ingle fireplace, and the chimney-piece is of yellow pine,





GATEWAY, KIRKSTALL ABBEY.

with vert antique marble surround. A panelling treatment has also been adopted for the walls of the dining-room, with fitted dresser, designed by the architect, and carved cabinet, all executed in oak. In harmony with the general scheme is a carved oak chimneypiece having stone inner surround and tiled interior, with barred grate and metal canopy.

An excellent decorative scheme has been carried out both in the inner hall and on the staircase. The former is panelled in fumed oak. In the recess is a Hopton-wood stone fireplace with ornamental interior. Forming a balustrade is an oak guard. Around the walls is a deep ornamental plaster frieze, having a motif of vine-leaves. The scheme is completed by lantern-shaped lighting fittings, and an oak floor. The staircase has oak balustrading, with carved panels of floral design, and the headpieces are set with motifs of animals and birds, owl's head, &c. The staircase walls are covered with a small, neat floral-patterned paper, and around the room runs a fluted cornice. The white ceiling is enriched with cornerpieces representing the thistle.

The contractors employed were: Messrs. Robert Hall & Co., of Galashiels, who did the masonry, joinery, and panelling; Mr. Leonard Grandison, plaster work, both plain and ornamental, Peebles; and three Edinburgh firms: Messrs. Allan & Sons, marble and tile work; Mr. Hugh Weir, plumbing; Mr. T. Wintour, painting.

### "ARMA VIRUMQUE" SCRIBO.

*In piam memoriam.*

By FRANK PECK, F.R.I.B.A.

THE outstanding herculean figure which has now departed was the personification of the ideal of the Empire's manhood. His influence transcended that of Peter the Hermit. As his call rang out clear and true, myriads sprang forth to depart upon this modern crusade, the greatest of all, a crusade not to attempt to stem back the flood of Mohammedanism from entering Eastern Europe, that had been done already; not to wrest the possession of the Holy Birthplace from the infidel; but, with the gigantic task of defending the liberty of the whole world, ever wider and more accessible as moderns know it.

Combining titanic proportions and attributes with the higher endowments of wisdom and superior foresight, the great leader whose memory is held in such esteem by his co-Britons of all races, and by the countries girdling the wide earth, would, in the ancient mythology of pagan times, have been "pedestalled" and acclaimed a Sun-God.

And then the living facts of the war as affecting our brethren the New Zealanders. Inspired with sublime courage, and drawn by the magnetic personality of the great leader, they hastened to the help of the Mother-

land fighting on behalf of the suffering weaker races; not in mad frenzy, nor depressed by agonising fear, not obsessed by omens of coming change, disaster, or threatened loss of power; but having the full knowledge of the horrors and penalties of war, they were resolved to assist to defend the right.

They left their wonderful islands far behind, in many cases never to see them again; left them to suffer abroad in strange and unknown lands, or to return hurt and maimed. All was in the sacred cause of liberty. "Theirs not to make reply, Theirs but to do and die!" Willingly they endured, willingly many died.

And now the Memorial! What form is the permanent record of this Great Deed to take? for all the numberless deeds of heroism are One, each representing the full greatness of the combined effort. For is not each the Supreme Sacrifice?

There should be inspiring things done in building and art in this young dominion proved great even in its birth; and the seed must now be sown. New Zealand no less than the older British dominions, has a voice to utter; it has and will continue to have great living deeds to commemorate and to worship over, by humans of all creeds and all beliefs, humans of all races, the Maori no less than the Pakeha.

Handed down to us in Egypt, the original seat of learning, "where sages looked for their lore," and where the Australians and the New Zealanders landed first to fight (and, mark you, near to where the founder of our Christian religion lived and died), throughout Asia Minor, and through Gallipoli where "The Anzacs" gave up their lives in sacrifice for their brethren, through ancient Byzantium, through Cyprus and Salonica, and through ancient Greece, through Italy (ah! what memories are recalled by these names of the lives and progress of the prophets and doctors and martyrs of the early Church), across the borders of Italy, and through France from the S.E. to the N.W., France with its glorious "Gothic," across England with its no less beautiful but more restrained and, in some respects, more dignified "Gothic"; throughout all these countries there still remain the buildings which have spoken to men from the very earliest pagan times, through the transition into the early Christian era, and down to the present day; and they speak to us through their stones; "Sermons in Stones!" clearly and eloquently recording to us the history of great men and great events, and revealing the characteristics, nay, the characters of the peoples of all time.

New Zealand is young in its birth; it should commence well; the seed should be clean and well sown; if proved sterile, the ground should be grubbed up and resown with fresh seed.

The Soldiers' Memorial, then, should be a building permanently constructed by the most genuine and devoted craftsmanship, and containing a military chapel dedicated to soldiers and their families for ever. Here could be placed full records and permanent memorials of its departed soldiers. In its various component parts and detailed features would be symbolised each greater deed. It would be embodied in a true Church of the Resurrection, and appropriated for communion with the departed; with those who have given up their lives for their brethren. Since the war began, famous chapels in various cathedrals and churches in Europe have been reserved, appropriately adorned, and furnished as military chapels for all time.

Lord Kitchener's work was done. We are told of his devout habit before commencing to discharge the great tasks he had undertaken. He would have used such a chapel; and the last impression given of his calm end is well pictured by the old-time words of a great descriptive poet:—

Then with a slow incline of his broad breast  
Like to a diver in the pearly seas,  
Forward he stooped . . .  
And plunged all noiseless into the deep night.

And now the site! My thoughts revert back to the departure ceremony of the reinforcements in Nelson. "The church steps." What a tribune! There the soldiers gathered to be addressed in farewell by their elder-men. It required no "Oracle" to point out the justice of their cause, the thrill had passed through the souls of Britons of all classes, all being of one mind, all of one intent. The ties were lengthened but not broken; and the soldiers marched over the threshold to the pathway of the broad seas stretched out before them, to sail afar, and many to return in triumph as conquerors to the same spot. What hallowed ground! The soil upon which the founders of the Dominion landed; the land which long before had risen before the eyes of the great navigator-discoverer far out at sea; the site of entrenchment and defence for the establishment of the Dominion itself; and, around, the sturdy settlers resting in their last sleep; all modern history! What a site! The "Mecca" of New Zealand.

*In piam memoriam!* Will the victors return to a temple already projected or in the making to the glory of God, for Lord Kitchener's work already done and for the victory of his men which the justice of our cause should give us faith to foresee? or is the best memorial to him "the winning of the war first" (what fools' words if taken literally), or something which will indirectly save our pockets; and when assured of victory, and after we who are left behind have reckoned our makings or our leavings, then, and only then, shall we build in memoriam? *In piam memoriam!* How blind we are!

As illustrating the effects of personal efforts, my thoughts then revert to the great Christian temple of Chartres. Mounted high upon the hill amidst the plains of Normandy, and built in the Middle Ages to preserve a great tradition and to hold a relic, then destruction by fire which plunged the populace into despair, the realisation of work to be done for a Greater Power inspired the nobles and commoners alike, who harnessed themselves like beasts of burden to wagons, and with great enthusiasm but infinite labour they dragged up the steep hill huge stones, great timbers, and other materials, and rebuilt the temple and continued the tradition upon which they relied; and, when the bells were cast, we are told of such works that the people, rich and poor alike, threw in their silver rings and such ornaments as they could spare, to improve the quality of their tone. In the very early morn the old peasant women equipped with little but faith may still be seen in their temple; and when the "Angelus" bell rings out silvery and clear, the workers within earshot in the plains bow down their heads (as painted by Paul Millet and here in Nelson shops to be seen engraved). It is the silver in the bells which calls them!

Chartres with the tradition and with the memorials is their "Mecca," and was the "Mecca" for the day of a great French army of 110,000 soldiers, which the writer saw as a student from the point of vantage of the lovely N.W. lantern tower with spirelet which soars high above the plain, as the wooden central spire at Nelson above the sea; the soldiers clothed in the gay and varied uniforms of those days and passing through the city from their northern manœuvres. Disbanded for a time, probably for the purpose, they flooded the cathedral (for the Frenchman loves history and art, and, as we see, fights for it) to view the gifts and the works of their forefathers, the sculptures and monuments of biblical and traditional subjects round the ambulatory. Chartres for that day at least was the soldiers' "Mecca." Soldiers of France, agnostic before the war!

Again a prototype, for grouping and position, that of Lourdes. Here one has seen on the steps below the great terrace from which the double church and its minarets spring, the leaders and least helpless of the Catholic pilgrims who lie in ranks on each side of the broad avenues stretched far out below; many have come or have been brought from far-off distances; from Belgium of the suffering, from England of the free; a

thousand miles and more; little murmuring, indeed with happy ethereal (but oftentimes vacant) expressions; for is not this the supreme moment of their invalid lives which they have looked forward to for long, to be brought under the shadow of the miraculous rock, to be bathed in the pool, and presented within the great church of deliverance? Those who cannot mount the steps can be drawn up the long, curving, inclined processional roads on each side leading up to the front of the building through the great portals of which come the elevating strains of music from this cosmopolitan festival. But we must be more practical in this era!

And now, again, the "Anzac" Memorial at Nelson. At the base in the centre are the broad steps which have already become traditional by their use as described in a foregoing paragraph; and, as at Lourdes, in addition on each side the scheme of composition should include broad inclined roads curving round and skirting the hill and leading up to the high terrace or grand place fronting and forming a "podium" to the church of the future. At various stages would be built terraces, offsets or bastions, platforms or galleries, on which would be placed pedestalled statues in stone or bronze beginning at the base with those of the earliest navigator-settlers and other pioneers, including the Maori, and progressing in date upwards. Such great figures as those, on the soldiers' side, of Lord Roberts (who died in harness), Lord Kitchener, General Sir William Birdwood, and other distinguished New Zealand soldiers of the past, present, and to come, and on the sailors' side Lord Nelson and others of the past, Admiral Jellicoe and other sailors of the present and to come; distinguished British statesmen also in their due order, with room for the future; for are we not on the threshold even now of producing such statesmen to enter the world-Cabinet of the British Empire and commence its greatest epoch now in the making? Provision should be made also to accommodate bronzes and works of art, all of educational influence, and other interesting items of a secular description. All this external memorial would interest the pilgrim right up to the building itself, the second but dominating part of the Anzac Memorial.

"There should be inspiring things done in building and art for some time to come."

And the building, crowning the hill, should be commemorative in many ways. This should be a true church typifying "The Resurrection" ("Christ's Church," its dedicatory name, is appropriate and supreme), and this should dominate in its suggestive features the whole composition, being aided by other symbolism which should also typify "the sacrifice of the New Zealanders for their brethren" in a specially designed military chapel connected with and entered also from the church; which military chapel should be of considerable size and dignity, and have various features signifying the World, the Motherland, the East, and New Zealand, and be intended to receive and preserve exclusively military memorials, records, and flags, and suchlike perishable trophies; and it should be especially fitted up for and express its purpose of worship and of communion with the departed.

Great precedents exist in the antique chapels of Henry VII. at Westminster Abbey and St. George's, Windsor, and many others—some antique—especially reserved, fitted up, and adorned since the war began.

Nelson, then, as our "Canterbury" of old to his forefathers, would be the goal of the New Zealand pilgrim. Here could be also a future home of advanced science and of the arts of peace, and the seat of a great university (for which its local characteristics are eminently suitable) of the future, which would be detached from the greater commercial centres of the Dominion, and appears to be partly endowed already.

## AUSTRALIAN TIMBERS.\*

Owing to the depletion of the forests of the world, the great demand for timber for constructional purposes, pulp for paper, and for industrial purposes generally, to say nothing of devastation by bush fires, war, and other causes, or even the high cost of freightage, the stock of timber throughout the world is becoming constantly reduced, whilst the price is increasing by leaps and bounds. There is not a solitary reason for hoping that the threatened famine can be averted in the immediate future by any vigorous policy of afforestation. The only hope is that possibly vast territories, as yet inaccessible, may be opened up by the construction of railways or roads to the ports of the northern hemisphere. We understand, for instance, that Siberia contains incalculable quantities of the finest red deal, a timber possessing many virtues both for constructional work and finishings. This timber has been both diminishing in quality and quantity for many years, and is only procurable in small scantlings or boards. There is little prospect of replenishing our diminishing stocks from either the northern temperate or the tropical belts of the earth's surface. For countless ages the warmer regions have been exploited, mainly for harder or fanciful classes of timber used both for furniture and interior finishings—Spanish mahogany, for instance, as a timber gradually disappearing from the markets of the world.

Great Britain, in common with most European countries, has a big question to solve in finding out where fresh supplies may be obtained. Strange to say, however, she is beginning to realise that, in the British Isles, there are forests from which a good supply of very serviceable timber (comparatively speaking) may be drawn upon in the immediate future. A society has recently been formed by which the grower, the merchant, and the consumer are brought together for business purposes. The timbers of Britain are amongst the best in the world. Poets for ages past have sung the praises of British oak for use on sea and land, whilst chestnut for roofing beams is even better than oak. Beech, ash, elm, the various classes of pines, including the firs from Scotland, furnish the British Isles with high qualities of timber, probably unrivalled in variety upon any equal area. If afforestation had been consistently carried out during the past century, the timber reserves of Britain would have been amongst her most valuable assets. Better late, however, than never, and probably many of the German prisoners of war could render valuable aid in the great work of tree-planting, work in which Britishers are certainly not experts, because, unlike the Germans, they have little experience in this direction. That Britain needs to solve the problem of its timber supply is obvious from the returns recently published. These show that during 1913, 1914, and 1915 there were 11,589,811, 8,432,646, and 7,665,524 loads imported, with the values of £33,789,356, £25,336,951, and £32,778,764 respectively. Thus the imports have diminished to the extent of one-third whilst the cost has advanced about 50 per cent. per load. It is obvious, therefore, that in Britain—the conditions of which, we take it, are similar to those of many other European countries—there will be need both to restrict consumption and to depend more upon the magnificent varieties of timber she now has in reserve in her forests.

This article, however, deals with Australian timbers, but many of the conditions of Britain in the way of imports are applicable to Australia. We have pointed out that supplies of imported timber are becoming more difficult to obtain, and the time is not far distant when Australian timbers will be largely used in Australian construction, if not from choice alone, from necessity also. The use of such timbers has been avoided in the past, because it was fraught with positive danger both to the work and to the reputation of the architect who used them. Want of seasoning was responsible for much

MR. H. T. CHALCRAFT, London, is the architect for the permanent mission building to be erected in the parish of St. John, Stratford, at a cost of £2,135, as a substitute for the present iron structure.

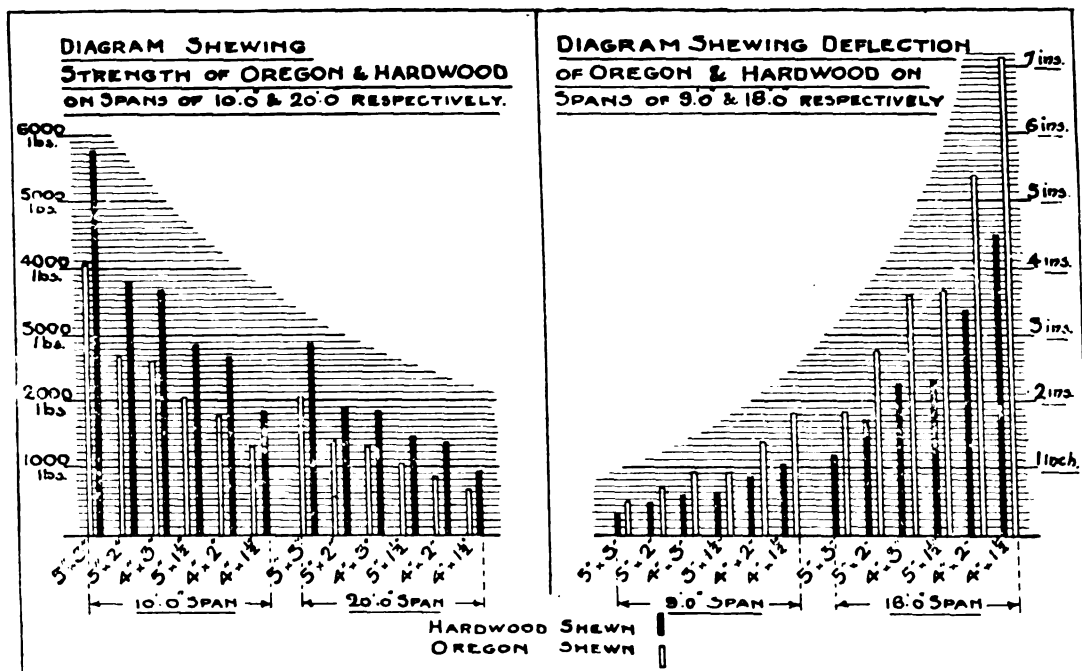
\* A contribution to the "Journal of the Royal Victorian Institute of Architects," by "The Editor" Digitized by Google

of the trouble, and therefore shrinkage and warpage were inevitable. To recall a familiar speech of those days, when it was said that "a post would turn round and grin at you," there was some truth in this fanciful language. The amount of twisting which Australian timbers performed was really shocking. Further, carpenters when using hardwood preferred it "green," and it was often fixed in a building within a week or two of being hewn. It was very heavy to handle, it is true, but wire nails could be driven without any "boring," whilst to a well-set saw it responded well. If the timber had been seasoned, all nail holes would have required "boring," and the timbers considerably harder to saw. The use of Australian timber some years ago became discredited, and anyone with wide knowledge of the building trades avoided its use. The nomenclature was bad, because every district gave different names to the timbers hewn in its forests. Scientific classification of timbers was ignored. Saw-millers sent their consignments to market in a green condition, and the consignments consisted of all descriptions of timbers mixed together. A truckload of scantlings would include messmate, mountain ash, stringy bark, and probably other varieties of eucalypts, except red gum, which, being a more valuable timber, was always kept separate. At that time there was also very little reliable data as to the strength of our native timbers. It was said in those

of repute in Australia have also recently adopted branding all their hardwood boards and scantlings. Queensland cabinet timbers, hoop pine doors, and three-ply veneer boards are also now branded. This operation is only performed after the timber has been selected and classified, the inferior or defective boards having been gradually culled. Each firm of producers must now stand on its reputation.

An outing, which may be performed in a day from Melbourne, to the Victorian Hardwood Milling and Seasoning Co.'s mills, in the Warburton district, is a day well spent. This is perhaps the bush saw-mill nearest to Melbourne. The operations of felling, transporting logs, sawing, stacking, seasoning and dressing are full of interest. We possess recollections of great educational value in visits recently paid to the saw-mills of Tasmania, particularly those at Duck River, in the North-West, and that on the Huon in the South. It was not till then that we realised the magnitude of the timber industry of Australia. In all directions this industry may be developed, but we are insistent that for every tree felled at least another shall be planted in its place, and also that the forests shall be thinned by the removal of worthless trees which take up space and the ground nutriment of more valuable forest growth.

We record with pleasure that during the last few



days that an architect who used our Australian timbers deserved to receive double commission because of the worry he was likely to experience.

However, there were men even in those days who possessed faith in Australian timber and proclaimed its virtues, in and out of season. They were considered mere "cranks" by the thoughtless majority because they maintained that this timber was amongst the finest in the world. Its durability had never been questioned. It was surely possible to standardise the nomenclature: to use each description for the purpose for which it was best suited, and to insist that only the best descriptions were to be put on the market. Further, where it was necessary, it was to be properly seasoned. That all these were possible was the opinion of Mr. V. B. Trapp, long well known throughout Australia as an enthusiast for the use of our native timber. But he maintained that one method must be adopted, and that was so "branding" each piece of timber that it might be seen from which mill it had been obtained. The proposal for branding was subsequently put into operation by the timber merchants of Northern Tasmania upon flooring boards and other machine-dressed work. The limited adoption of this practice has proved so successful that millers and merchants

years the Royal Victorian Institute of Architects has given valuable help towards the utilisation of the vast timber resources of Australia. Hoop pine, beech and maple from Queensland, jarrah from the West, cedar and ironbark from New South Wales, hardwood and blackwood from Tasmania, together with our Victorian varied classification, constitute records of variety both for constructive and decorative woodwork. The Institute, by its action three years ago, did much to allay the "borer" scare, which then threatened the existence of the hardwood industry. Members of the Institute have also done much in their individual capacities to utilise native timbers for decorative and internal use in their buildings. The possibilities of hardwood are fully revealed in the beauty of the fittings of the new room of the Institute. But knowledge of their beauties is not enough, however; we require further to be supplied with exact data concerning the scientific use of hardwood.

The engineering school at the University of Melbourne, at the suggestion (and, we believe, the cost) of Mr. Trapp, has recently compiled several series of tests through its demonstrator, Mr. James Mann, whose qualifications for the work are so well known, comprising the strength, deflection, fire-resisting, and other proper-



ties of hardwood; besides formulating data upon which various results may be based. We have prepared for this journal special illustrations showing diagrammatically both the strength and deflection of oregon and hardwood of various dimensions of scantlings, by which comparisons may be made at a glance. For instance, a 5 by 2 hardwood scantling can be used in place of a 5 by 3 oregon. At even the cost of both timbers at 24s. per 100, hardwood would be, on the quantity used, 16s., and oregon 24s.

In the matter of flooring boards, comparisons are noteworthy. Usually  $4\frac{1}{2}$  by  $\frac{3}{4}$  hardwood flooring boards are used. By tests it will be seen that these are stronger than New Zealand white pine at  $1\frac{1}{2}$  inch, and Red Baltic, Rimu, and White Baltic at  $1\frac{1}{4}$  inch. In the past this phase has not been considered, but now bears a different complexion on account of the increased cost. As we cannot place  $\frac{3}{4}$ -inch hardwood against  $\frac{3}{4}$ -inch Baltic, nor yet against  $1\frac{1}{4}$ -inch Baltic, it has been suggested that  $\frac{3}{4}$ -inch hardwood should take the place of  $\frac{3}{4}$ -inch, or even 1 inch, in foreign timbers.

It is gratifying to learn that the price of hardwood flooring has only increased 1s. to 1s. 6d. per 100 lin. feet, and the merchants handling this timber have to be congratulated on the stand they have made, in order to popularise what is undoubtedly one of the best flooring boards in the market.

For those, however, who prefer a pine flooring, there is no better timber than hoop pine, from Queensland, which is equal in every way to New Zealand kauri. It is said that architects are astonished that more of this timber has not been used. In the past, no doubt, this spare use was probably on account of it being higher in price than Baltic. To-day, however, it is practically the same in price; further, the boards were never branded. It is surely strange for the public to ask for kauri flooring when they could obtain hoop-pine flooring at considerably less cost. Even at the same price, hoop pine is proved by tests to be equal to kauri. Owing to the high price of Baltic flooring hoop pine is likely to be increasingly used, and we would urge those interested in the production of this flooring to follow the example of Tasmania and to grade and brand, that architects may with safety use this flooring in their buildings. In a continent where timber residences will be built in some of the stretches of the vast territory for generations, it may seem strange that hardwood weather boards are not more extensively used. The reason, however, is that the 6-inch by  $\frac{3}{4}$ -inch sawn boards placed on the market by local saw-mills have been of the roughest description, and have not possessed a single virtue. Now, however, the dressed hardwood boards recently placed on the market are superior in every way to the imported softwood boards. In the first place they are stouter and better boards, the use of which makes buildings cooler in summer and warmer in winter. Secondly, they need only be painted once in a number of years. The better plan, however, is to stain them. This is only necessary, it is said, about once every ten years. Thirdly, their lasting properties extend long beyond those of Baltic. Three years ago, when in Tasmania, we inspected a building which was erected about thirty years ago. The rainwater from the roof, in the absence of eaves gutters, ran down one side of the building. From this side we asked that a piece of the weatherboard be cut off. This was done, and when the thick moss had been scraped away the timber was found to be as sound as when first nailed on the studding.

One of the most important points concerning Australian timber, and more particularly hardwood, is its fire-resisting properties. The Metropolitan Fire Brigade officers have repeatedly drawn attention to the fact that where hardwood has been used, it has acted as a fire-break, and in many instances fires have easily been prevented from spreading. The University tests prove that hardwood takes longer both to ignite and to burn through than any other timber. What is more, as soon as the flame dies, the timber ceases to smoulder or glow. Comparing the

timbers experimented upon with hardwood, the following conclusions are arrived at:—

Hardwood takes	20%	longer to ignite than	Sydney Blue Gum
"	95%	"	Hoop Pine
"	123%	"	Red Baltic
"	213%	"	White Baltic
"	235%	"	Oregon Pine
"	327%	"	N.Z. White Pine
"	526%	"	N.Z. Rimu

Hardwood takes	2.8%	longer to burn through than	Syd. Blue Gum
"	81.0%	"	Hoop Pine
"	68.0%	"	Red Baltic
"	70.0%	"	White Baltic
"	77.0%	"	Oregon Pine
"	154.0%	"	N.Z. White Pine
"	176.0%	"	N.Z. Rimu

Hardwood and oregon pine cease to glow or to smoulder immediately.

Sydney Blue Gum takes 22 seconds.

Red Baltic	"	1 minute, 17 seconds
White Baltic	"	3 minutes, 49 "
N.Z. White Pine	"	6 " 39 "
N.Z. Rimu	"	7 " 20 "
Hoop Pine	"	10 " 25 "

We cannot but note the high prices at present ruling in Australia for foreign timbers. Before the war, oregon was about 15s. per 100 feet, now it is 25s.;  $\frac{3}{4}$  Baltic was 10s. 6d., to-day it is 17s. for white, and 17s. 6d. for red. This necessarily means that Australian timbers must be used, not only on account of their superiority of strength and deflection, or even their fire-resisting properties, but largely on account of their prices.

#### THE NEW CHEMICAL LABORATORIES. UNIVERSITY COLLEGE, LONDON.

THE New Chemical Laboratories at University College have been erected from designs prepared by Professor F. M. Simpson, F.R.I.B.A., upon a site specially acquired for the purpose, immediately to the north of the main College buildings. The site fronts Gower Place and has a frontage of 315 feet. The area covered by the buildings is about 17,500 square feet. The roadway formerly known as Little Gower Place has been closed to the public, and will, when the full developments are completed, form an additional quadrangle to the College.

The planning of the interior was settled by the architect in consultation with members of the chemistry staff who had beforehand made a tour of inspection of the chief modern laboratories at home and abroad.

The building comprises a half-basement, ground, first, and second floors. The half-basement facing Gower Place looks out on a wide area: the lighting is excellent, the lower part of the windows being fitted with prismatic glass. The western portion of this floor is occupied by the laboratories and research rooms for physical chemistry. At the eastern end is a room about 50 feet square: it is supplied with gas, water, steam, compressed air and drainage, and the experimental electrical plant will be installed here: the room is specially designed for large scale operations, such as the examination of a new process with a view to its utilisation for manufacturing purposes. It has already been put to such a use, and the results obtained have been used for the design of a special Government factory for work in connection with the war.

Adjoining this room is a well-fitted workshop for the construction of apparatus for the departments of chemistry and physics and for the use of students. On the same floor are rooms for the production of liquid air and hydrogen for low-temperature research, and for the main chemical stores. The cellars of the houses that previously stood on the site has been adapted for the storage of corrosive and inflammable chemicals.

The entrance hall and main staircase are in the middle of the ground floor. To the east are two lecture theatres and preparation rooms, the library, the private room and laboratory of the Professor of Inorganic and Physical Chemistry, Dr. F. G. Donnan, who succeeded Sir William Ramsay in 1913.

The large lecture theatre occupies the whole width of the building: it is panelled with Oregon pine and fitted with tip-up seats accommodating two hundred and forty persons. It is well lighted, having windows on both sides, and possesses excellent acoustic properties. It is used for the experimental lectures to the large first-year classes, and is so arranged as to be specially suitable for public lectures.

The small theatre accommodates one hundred and ten persons: it is used for the senior courses in inorganic and physical chemistry.

Immediately to the west of the entrance hall is the museum for the exhibition of important chemical products; and next to that is the main inorganic laboratory for second-year students, with rooms adjoining for operations involving noise or fumes, for balances, and a store for the chemicals needed on this floor. The laboratory and the balconies have special fan ventilation. The tops of the benches are of unglazed, highly compressed tiles, which are fire-proof; they are easily kept clean and do not increase the breakages, as was feared. Beyond this laboratory is a group of research rooms for the assistant members of the staff and for research students.

On the first floor, westwards, are the private room and laboratory of the Professor of Organic Chemistry, Dr. Norman Collie, who has occupied the Chair since 1902 and is Director of the Laboratories. Adjoining these are the organic laboratory, combustion room, and balance room at one end, and a group of research rooms at the other. To the east of the main staircase are the organic theatre, the organic chemical stores, an apparatus store, a dark room, a spectroscopy room, a service room, and lavatories.

At the east end of the second floor is the laboratory for first-year students, providing bench accommodation for one hundred to work at a time. Balance and store rooms immediately adjoin it. West of the main staircase is the department of pathological chemistry, under the direction of Professor Vaughan Harley. This department is devoted entirely to post-graduate and research work: it comprises a general laboratory, a research room, operation and postmortem rooms. To the west are six research rooms for general chemical research.

The building has three staircases—the main one in the centre of the building, one at the extreme west end, connecting the research rooms, and the other at the end of the bridge, over Little Gower Place, which connects the new building to the old College buildings. The three lecture theatres and the first-year laboratory open on to the last staircase. By this means the larger portion of the traffic of the building and the attendant dust is kept to one staircase, and to the one furthest removed from the part of the building devoted to advanced work and research. There is also an external fire-escape staircase, serving the back of the theatre and the large laboratory on the top floor at the east end.

The general ventilation of the building is controlled by four separate fans, the flues from each room running to a main duct in the roof.

The laboratories and research rooms have glazed brick walls; they are amply supplied with fume cupboards, which are ventilated by separate flues in which the draught is created by gas-flames. Round the walls of the research rooms are teak ledges carrying gas, water, waste, and compressed air (the pipes for the latter are in, but the compressor is lacking). Research students make up their benches with teak tables of the same height as the ledges, and are thus enabled to meet the needs of their special work.

The site, buildings, and fittings, as far as they are complete, have been provided by members and friends of the College. The list of subscribers is a long one, showing the wide interest created. The following are the principal benefactors:—Sir Ralph C. Forster, Bart., £34,500; Anon., per Sir Wm. Ramsay, £6,000; Otto Beit, Esq., £5,200; the Chancellor of the University (the Right Hon. the Earl of Rosebery), £1,000; the

Worshipful Company of Goldsmiths, £1,000; the late Sir Edwin Durning-Lawrence, Bart., and Lady Durning-Lawrence, £1,050; the Right Hon. Viscount Iveagh, £1,000; the late Dr. Ludwig Mond, £1,000; Edwin Tate, Esq., £1,000; the late Sir Julius Wernher, £1,000; Dr. Rudolf Messel, £600; Students' Appeal Fund, £590 13s. 6d.; His Grace the Duke of Bedford, £500; the late James Eccles, Esq., £500; Mrs. Ludwig Mond, £500; Robert Mond, Esq., £500; the South Metropolitan Gas Co., £500; the Worshipful Company of Drapers, £500; N.B.B., £500. The London County Council voted £25,000 towards the completion of the laboratories.

Much still remains to be done before the building can be fully used for the purposes for which it has been so admirably designed.

The Library, to be called the "William Ramsay Library" in commemoration of the great work done by Sir William Ramsay during his tenure of the Chair of General Chemistry at the College, is not yet fitted. A sum of £500 is required for this purpose. There is already a good collection of books waiting to be housed, and Sir William Ramsay has given £500 for the purchase of books and periodicals to bring the collection up to date.

The largest defects yet to be supplied are the laboratory equipment and apparatus, the provision of experimental electric current throughout the building, and last, but by no means least, the equipment of the department of physical chemistry. This branch of chemistry is comparatively modern, but is of the utmost importance. Many illustrations of this statement can be quoted, such as the manufacture of sulphuric acid by the contact process, the manufacture of nitric acid for explosives and artificial fertilisers, the hardening of oils for the production of soap and edible fats, and the production of a large number of special products in the electric furnace or by electrolysis—e.g., aluminium, carbide, cyanides, carborandum, bleaching powder, and carbonate of soda.

Nearly all the important advances made in chemistry during the last twenty years, such as the discovery and elucidation of the phenomena of radio-activity, the metallurgy of alloys, and photography, have been the result of the application of the principles and methods of physical chemistry.

In order to remedy these defects, to fit the library and to complete the buildings in some minor ways, it is estimated that a sum of £14,000 is needed at once, of which £8,300 will be devoted to physical chemistry, including the electrical equipment. In addition to this, there will be needed in the course of the next three years a sum estimated at £6,000 for the development of research work, making the total still required £20,000.

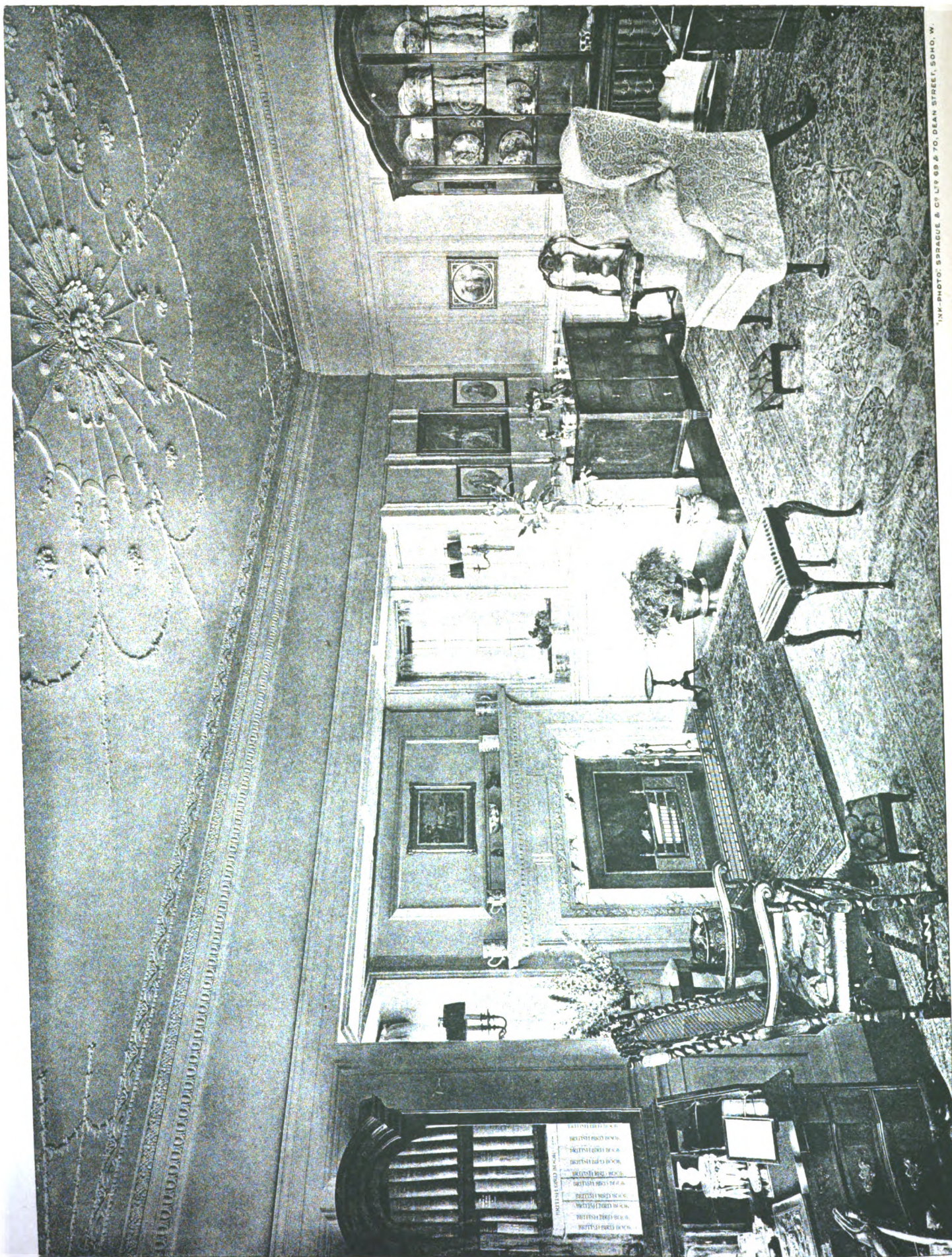
If this sum can be provided the laboratories will be second to none in Europe, and will offer opportunities for the study of chemistry such as are essential for the full and proper expansion of the industries of the country.

The chief aim of any university is to train students so that they may be of use to the State, and the new Chemical Buildings at University College, if they are properly equipped, will make it possible to do this, so as to meet modern requirements. Not only will there be every facility for teaching students up to the degree standard, but also post-graduate work and research will be possible to an extent beyond that in most laboratories, owing to the provision of a large number of private rooms and laboratories.

This arrangement for post-graduate work and research is one of the chief and one of the most useful features in the new laboratories. Most of the research rooms are together in the block at the extreme west end of the building, with a separate private entrance from Gower Place, and are served by the western staircase, as already mentioned. The work of a University should be measured by the number of post-graduate students and the amount of research work produced.







"NETHER CABERSTON," PEEBLESHERE: VIEW OF DRAWING ROOM

PHOTOGRAPH BY THOMAS LEWIS, LTD., BIRMINGHAM

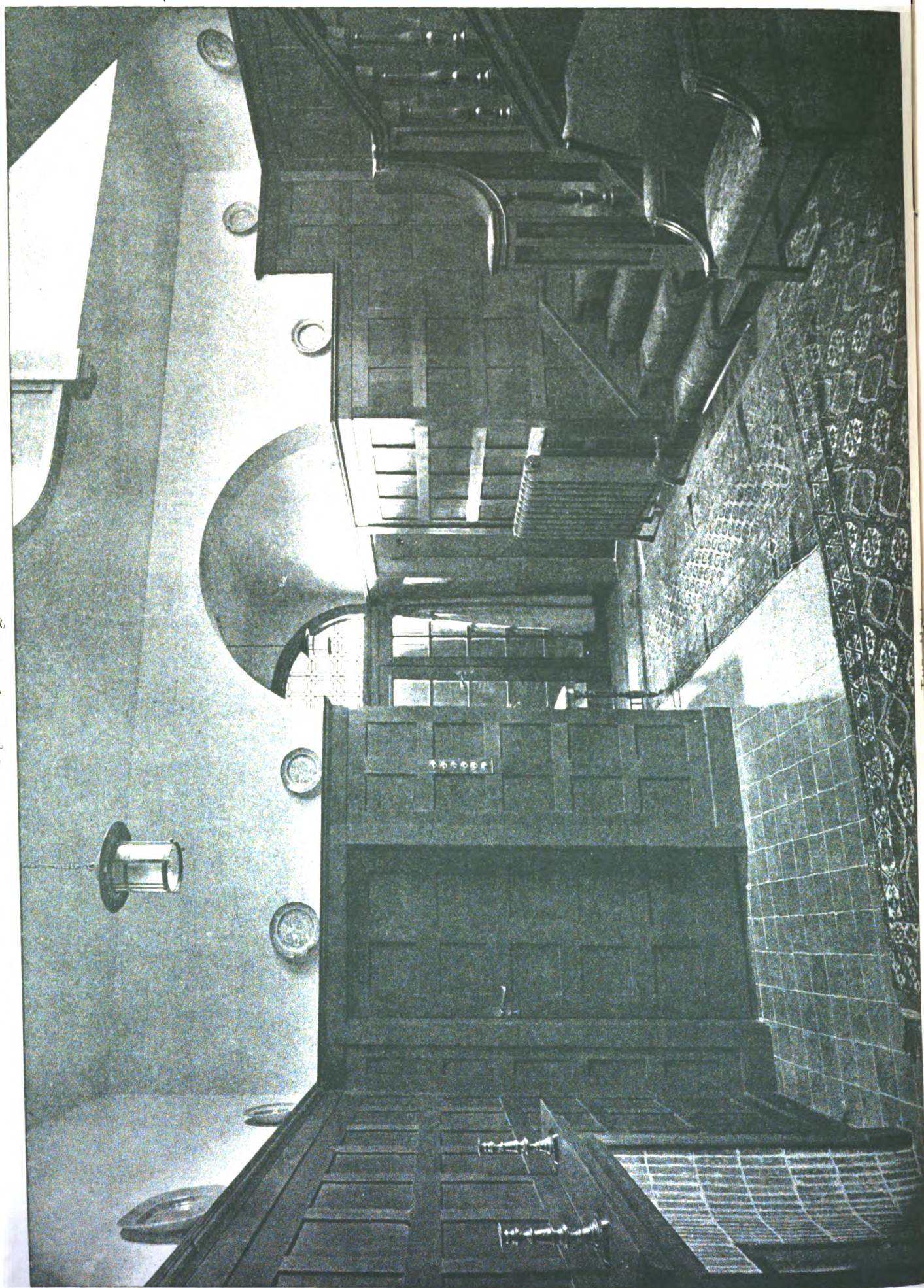
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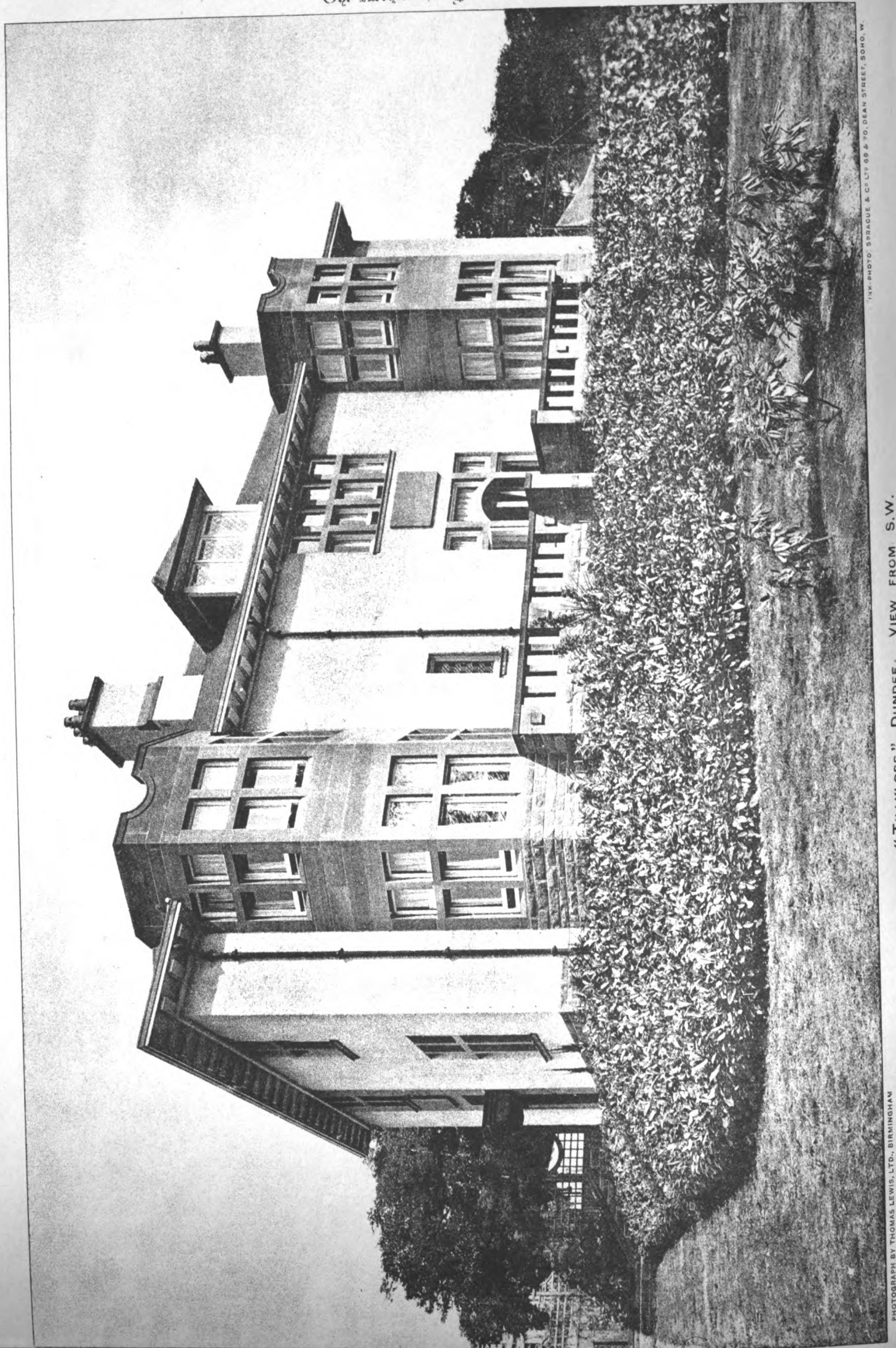


The Architect, Aug. 25th 1916.









"TILLYLOSS," DUNDEE: VIEW FROM S.W.  
Messrs. MACLAREN, SONS & SOUTAR, Architects.

PHOTOGRAPH BY THOMAS LEWIS, LTD., BIRMINGHAM

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The Architect, Aug. 25th 1916.



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"NETHER CABERSTON," PEEBLESHERE: VIEW OF HOUSE AND LILY POOL.

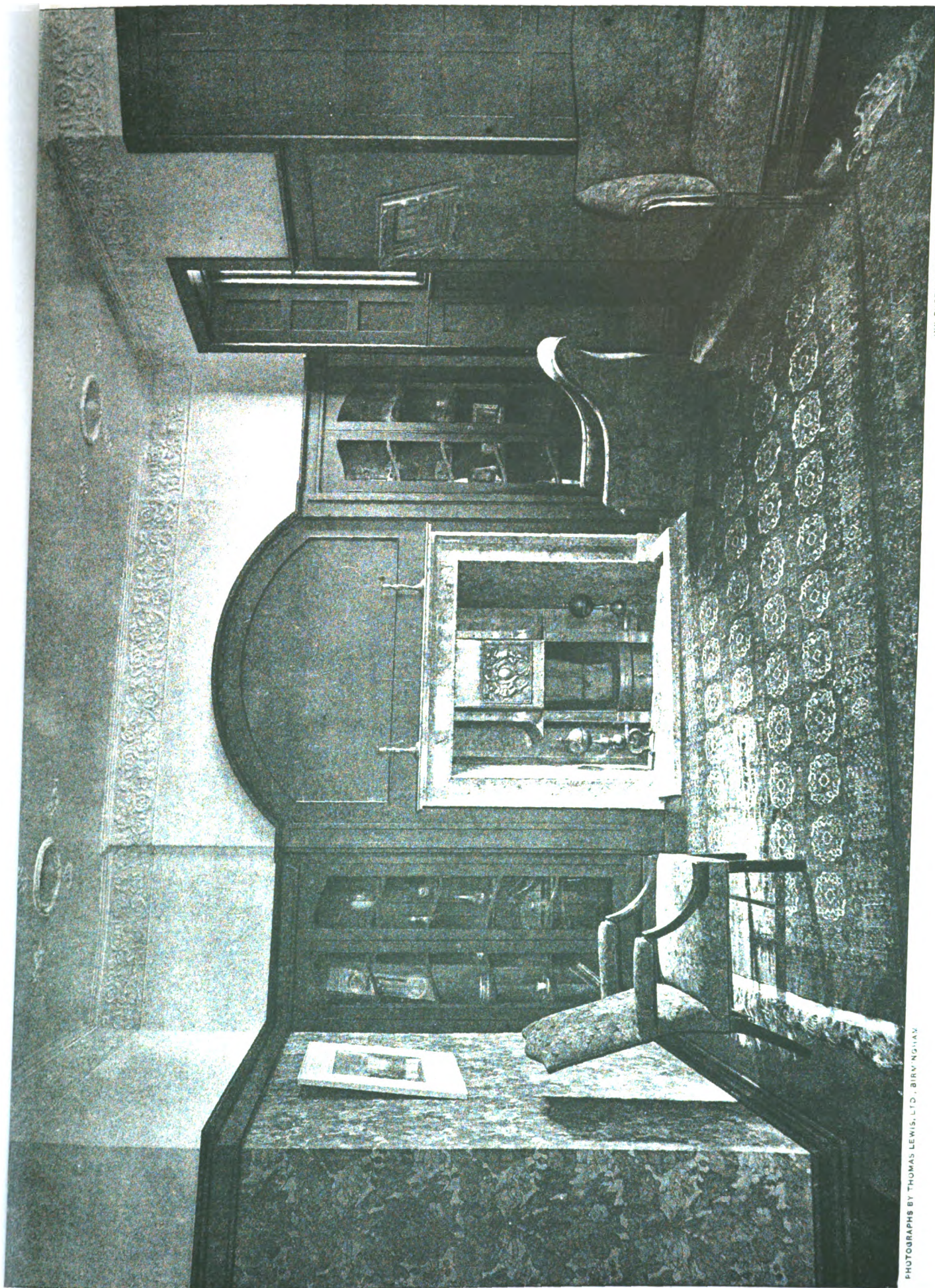
MR. J. B. DUNN, F.R.I.B.A., Architect.

(Royal Scottish Academy, 1915.)









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**"TILLYLOSS," DUNDEE: THE DRAWING ROOM.**

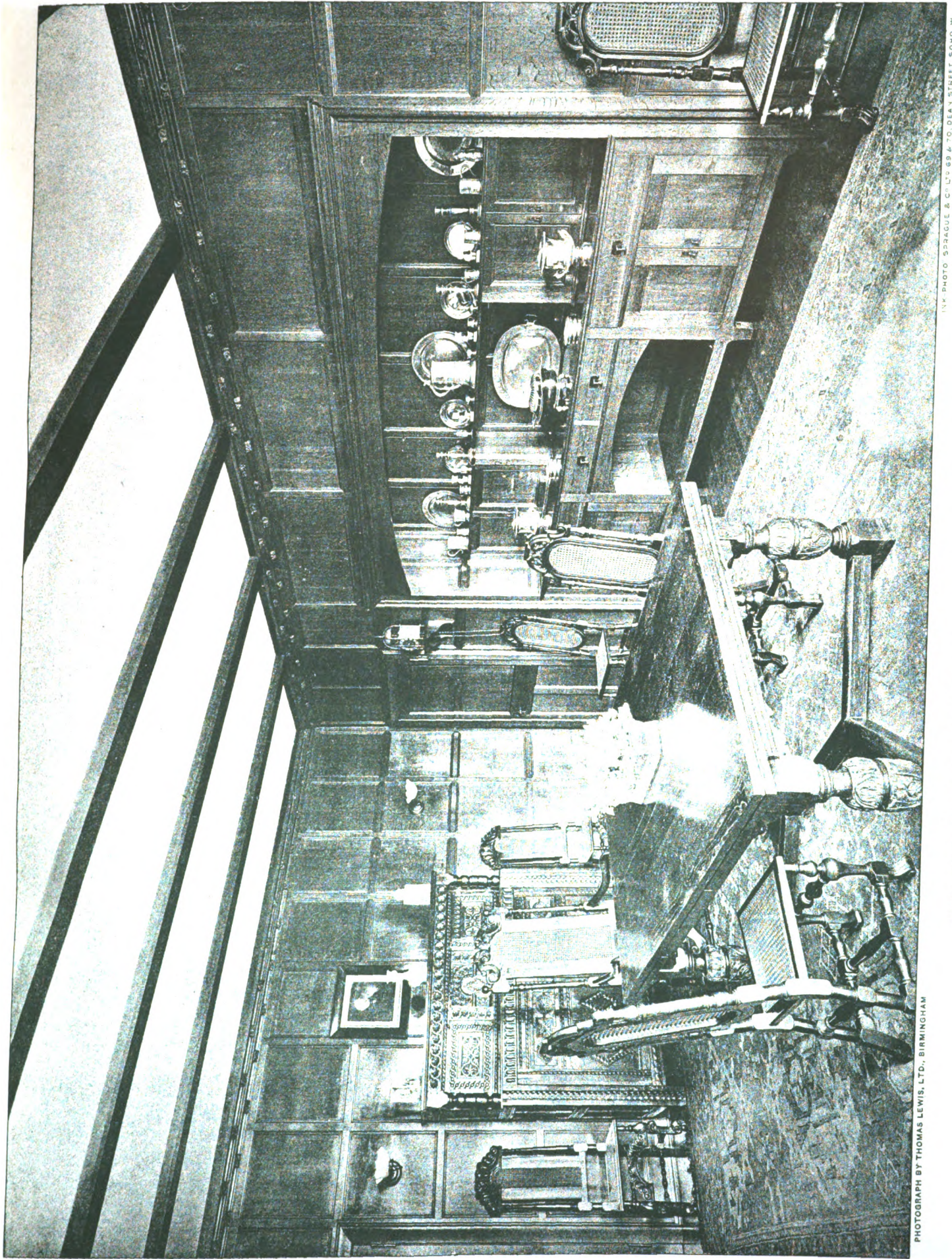
Messrs. MACLAREN, SONS & SOUTAR, Architects.

(Royal Scottish Academy, 1915.)









"NETHER CABERSTON," PEEBLES SHIRE: VIEW OF DINING ROOM.  
MR. J. B. DUNN, F.R.I.B.A., ARCHITECT.

(Royal Scottish Academy, 1915.)





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[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### Architectural Organisation in the Future.

SIR,—In these times of great shocks and results unforeseen, of inspiring deeds which evidence great self-sacrifice, even the supreme sacrifice on our behalf by many of our absent colleagues, members or otherwise, when all professionals stand ready to do all the service within their capacity, one feels that questions affecting the claims of the mere individual should, for the time, be allowed to pale into insignificance; and yet the correspondence, page 505, vol. XXII., of the fourth quarterly part of the R.I.B.A. Journal, and page 158, vol. XXIII., of the second quarterly part, which have recently come over the distant seas, is a warning to us to be "on guard" for the sake of all, especially as sentiments are invited from interested professionals in the overseas Dominions upon the above subject.

At home, although a somewhat disinterested observer, and little acquainted with the trials and troubles of the inner groups at the Institute, one could not but admire the great enthusiasm with which Mr. G. A. T. Middleton in the past has pressed his views as to membership of the Royal Institute of British Architects (something doubtless in the form of "protection" has been proved to be lacking), which enthusiasm deservedly carried him a very long way towards his goal, their realisation; from which progress alone his cause gained some credit; so far, indeed, one saw at the time, that it became necessary to bring up the "Big Gun" carefully primed and already laid, who, all in one evening, with the aid of a few reflected sparks, blew up the whole project and left nothing substituted in its place. "Registration," so called, was finished for a long time apparently; but the poor artist and slave, often the real craftsman in architecture, whose unselfish temperament mostly causes his own undoing, was left still unprotected, albeit his smarter "would-be" contemporary was very properly "relegated," as our compulsory examiners call it; but his attitude now leads us to suppose only for a time.

One is interested, too, and amused at the challenge to us settled members, on page 158, from an outside overseas old scholar and disciple, who apparently had his own opportunity of entering the Institute by its front portal when living in London; for, indeed, studying under Mr. Middleton, he may be considered to have been travelling even then a long way on the road towards membership. As he says quite truly, architects and "architecturally-trained" men (sic!) in Great Britain had their opportunity some while back, and they should not be admitted now. (He does not say how the qualification for being hall-marked as "artists" has altered.)

As that writer, however, "is not prepared at present to discuss details," perhaps I may be allowed to do so, and if my information has the effect of "stopping the (suggested) rot" in the architect's profession or trade, my words will have been timely and not to be regretted.

I speak in answer to the writer's invitation, and from that far-away land over the seas, now proven great in service to the British Empire, from that Dominion of New Zealand; and I give merely my own impression of the effect of this suggested solution of the very grave problem of future selection for membership of our Institute. "The Royal Institute of British Architects," together with some interesting facts.

Since 1905 there has been a New Zealand Institute of Architects, which was incorporated in 1908, and, after much sound, clever, and able thought and consideration, the New Zealand Institute of Architects Act, "an Act to make provision for the registration of architects" (November 22, 1913), was passed by Parliament and has since become law.

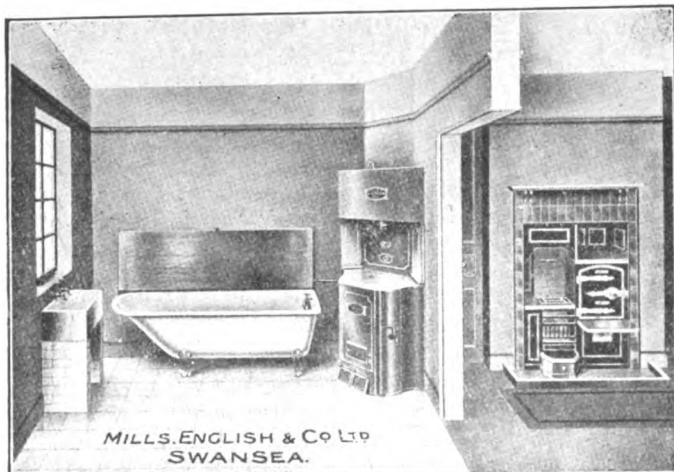
In 1915 the members of its different branches totalled 128 fellows (F.N.Z.I.A.), 176 associates (A.N.Z.I.A.), and five honorary members—there being no licentiate class—making 309 members in all. Amongst these are included ten fellows of the Royal Institute of British Architects, fourteen associates, and eighteen licentiates (called Lic.R.I.B.A. in their Journal), and, except two associates and four licentiates, all are in the fellows' class of the New Zealand Institute, which fact demonstrates the value which is put upon the mother institute's titles. These titles, as I hope to show, should be very sparingly conferred in the future except by the examination route through the front door, so long as that route is maintained.

Now New Zealand is a young country, and its settlers are ambitious and are making great strides; and, following the fashion at home of recent times, but to a greater extent, they revel in letters after their names; the papers are full of them; they have young universities which confer degrees—of high standard of course. Why not? And from mature manhood down to budding girlhood—or, in these days, let us perhaps reverse the order—it is the ambition to be "hall-marked" by letters M.A., B.A., &c. Perhaps as the sequence of the Maori tattoo "letters" from England go down very strongly, I am informed. Curious trade guild significations and "L.R.I.B.A." tattoo one as richly as F.R.I.B.A. in the general eye (but not, of course, amongst New Zealand architects, who recognise and have a great respect for our senior "home" qualification). As to the home qualification of licentiate, the careless distribution of such is open to breed infinite mischief, and herein "lies the rub."

Of twenty-six licentiates included in our own R.I.B.A. list for 1914, at least eight of the names are absent from the New Zealand list of members for 1915. I myself have been told "There are not many L.R.I.B.A.s in New Zealand. It requires a visit and to pass an examination in England, doesn't it?" I may say that 14,000 miles away from home, "Licenc. R.I.B.A." is not the most abbreviated form always used.

The New Zealand architects have well considered and ably drawn up their bill; and, of course, with the intention of including and governing the whole body of practitioners. But as our R.I.B.A. diploma or licence permits us to practise, L.R.I.B.A. frees a man, if he so chooses, from all other membership or authority, and all this for a guinea a year! How simple we Englanders are (as I have often been told).

Paying no entrance fee, no equitable subscription, but a mere paltry sum of less than 6d. per week, a man can apply to himself at the expense of ourselves—the real members—and of our benevolence, a significance superior to that of his fellows in the eyes of his lay friends and neighbours here. He can receive free of further charge our splendid Journal. We have never seen him or know him; we really don't want to know him. Sharp man! The Journal keeps him better informed than his rivals, and is in itself



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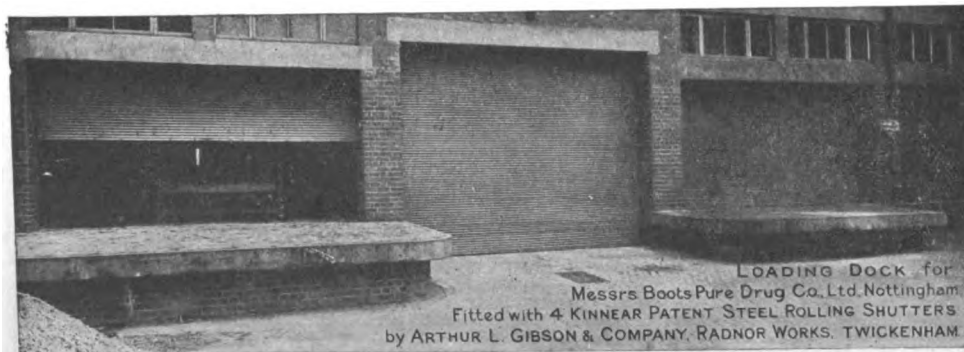
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of more value than the sum paid; he is, in addition, an L.R.I.B.A. if he chooses to drop the first abbreviation and use the letters only, and, being out of reach of the home institution, he is practically independent of any control whatever, and answerable to neither institution when he does not belong to the Dominion one.

Such would be the certain result of indiscriminate shedding of diplomas. "The people at home have had their chance; let us have it," the R.I.B.A.'s "Journal" correspondent of page 158, vol. XXIII., virtually pleads. No wonder!

Every licensee should be compelled, when elected, to automatically join up with the institute of his Dominion, and he should pay at least entrance fees and subscriptions equal to the value of the accepted significance of the benefits showered upon him; at least as much as the associates.

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I will not pursue the subject further, but leave it to be thrashed out at home. Pray accept from this long distance the consideration of my best wishes, fraternal greetings, and regard. "To-morrow to fresh woods and pastures new."—Yours, &c.,

FRANK PECK, F.R.I.B.A.

Nelson, New Zealand: June 19, 1916.

#### Sudden Death at Glossop.

SIR.—The report of a painfully sudden death in your valuable journal of 11th inst. reminds one that the danger of apparent being mistaken for real death, and treated accordingly, is conspicuously shown by an incident published not long ago in the Press. It appears that a badly wounded officer in the Dardanelles, diagnosed to be dead, was placed on the deck of a hospital ship with others for burial. A wounded brother officer, on taking a farewell look at his friend, noticed a slight twitching of the muscles of the face, and promptly reported the circumstance. The supposed corpse was conveyed to a cabin, given a hot stimulant, and recovered. Similar mistakes not infrequently occur, and are not, it is to be feared, always discovered in time to prevent interment. I should be pleased to send free literature showing how such possible tragedies may be averted on receipt of a stamped addressed envelope. Thanking you for your kindness.—Yours, &c.,

JAS. R. WILLIAMSON.

100 Chedington Road, Upper Edmonton,

London, N.: August 18.

THE National Housing Council have concluded arrangements to hold a conference at Birmingham on September 2, when most of the Trades Union Congress delegates will be able to attend. Resolutions will be submitted dealing with (1) State grants in aid to local authorities; (2) protesting against the suggestion of allocating public funds to private owners; (3) to urge the President of the Local Government Board to issue an order making it compulsory on municipal bodies to prepare housing schemes to be proceeded with immediately after the war; (4) condemning block and tenement buildings, and demanding schemes on garden suburb plans; (5) requesting the Government to insert a penalty clause in the Increase of Rent and Mortgage Interest Act.

## BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### BUCKINGHAMSHIRE.

*Gerrards Cross*.—House, North Park, for Mr. S. R. Welsh.

##### CHESHIRE.

*Parkgate*.—The "Chester" Hotel: alterations for the Birkenhead Brewery Co.

##### DERBYSHIRE.

*Derby*.—Works for the British Cellulose and Chemical Manufacturing Co., Ltd.

##### DURHAM.

*Jarrow*.—The "Golden Fleece" Hotel: proposed extensions.

##### LANCASHIRE.

*Oldham*.—Proposed Memorial church, Roundthorn Road.  
*Raustenstall*.—Newhallhey Hospital: extension for Lieut.-Col. J. C. Hoyle.

Two houses, Grange Street, for Mr. Peter Morre.

Gaghill Works, Waterfoot: extension for Sir H. W. Trickett.

##### LEICESTERSHIRE.

*Bagworth*.—Premises: additions for the Coalville Working Men's Co-operative Society.

##### NORTHUMBERLAND.

*Bedlington*.—Premises: extensions for the Northern Co-operative Bakeries.

##### SUSSEX.

*Hove*.—Bakehouse, &c., No. 36 Wordsworth Street. Mr. F. C. Axtell, architect, 38 Ship Street, Brighton.

Flats: conversion of premises, Cromwell Road, for Messrs. Albery & Lawrence.

No. 16 Sackville Gardens: additions. Messrs. J. Parsons & Sons, builders, 176 Church Road.

Maisonettes, Brunswick Road and Clarendon Villas.

Mr. A. H. Lawson, architect, 59 Ship Street, Brighton.

##### WARWICKSHIRE.

*Nuncaton*.—House, Coton Road. Messrs. G. Smith & Sons, builders, Chilvers, Coton.

##### YORKSHIRE.

*Beverley*.—No. 1 Malt Kiln, Cherry Tree Lane: rebuilding for Messrs. Glossop & Bulat.

*Deursbury*.—Premises, Northgate, for the Halifax Commercial Banking Co., Ltd.

*Doncaster*.—Proposed infirmary, the Hall site.

*Holmfirth*.—Military cottage hospital: proposed extensions.

*Middlesbrough*.—Sanatorium: enlargement. Council surveyor.

#### WALES.

*Barry Docks*.—Sailors' Institute. Mr. J. A. Owen, architect, Pembroke Chambers, Holton Road.

#### SCOTLAND.

*Buckie*.—Auxiliary hospital for wounded soldiers: addition.

*Glasgow*.—No. 41 Fountainwell Road, Springburn: additions and alterations for Messrs. R. D. Spittal, Ltd.

No. 202 Hunter Street: additions for Messrs. J. & A. Macarthur.

Offices, &c., Barcaple Street, for the N.B. Locomotive Co., Ltd.

Premises, Great Wellington and Park Street: partial rebuilding for Messrs. R. & A. Main, Ltd.

Saw, &c., shops, Parkhead, for Messrs. W. Beardmore & Co., Ltd.

Netherton Works, Anniesland: additions for the Ioco Proofing Co., Ltd.

#### IRELAND.

*Dublin*.—Proposed concert hall. Rutland Square. Mr. P. Munden, architect, 5 Trinity Street.

No. 20 Henry Street. Mr. G. Bealer, M.R.I.A.I., architect, 10 Leinster Street. Messrs. H. & J. Martin, Ltd., contractors, Grand Canal Street.

*Mallow*.—Parish church: additions and alterations. Messrs. Ashton & Coleman, R.I.A.I., architects, 7 Dawson Street, Dublin.

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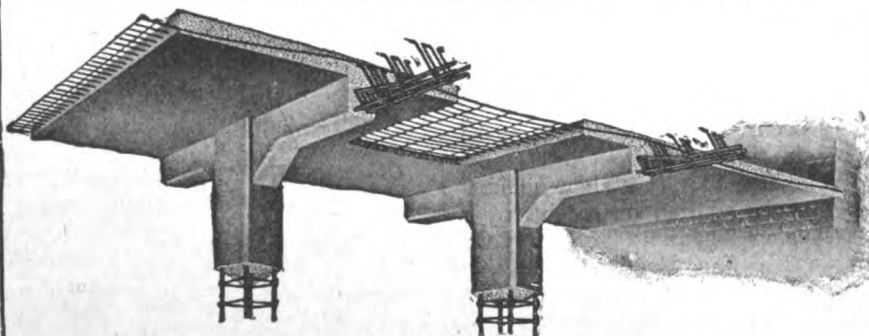
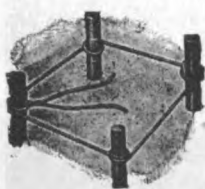
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# THE ARCHITECT

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## THE GREEK HOUSE.

COMPARED with our knowledge of their temples and theatres, that of the dwellings of the ancient Greeks even of the largest dimensions has until quite recent years been of the slightest. Indeed, for the most part the ideas of archaeologists and architects upon the subject appear to have been based almost exclusively upon the very vague references of the Homeric poems and the by no means clearly expressed description of Vitruvius, interpreted or misinterpreted by an attempt at concordance with the Pompeian residences when these were discovered. The generally accepted plan of the fifth-century Greek house as recognised in the days of the Greek revival is, in fact, wholly imaginary, and attempts to square with this the references of the Homeric writers have led to a perversion and obscuration of what little light these afford.

Zealous and thorough exploration of many sites in the lands surrounding the Mediterranean and in the islands of that sea have now, however, opened a treasury of information which, if still insufficient to answer unequivocally all questions that arise, has brought the extent of our knowledge to a far more satisfactory level and, incidentally, helps us more clearly, if not with complete lucidity, to understand both the allusions in Homer and other ancient writers and the descriptions of Pausanias and Vitruvius.

The great discoveries that have been made are those revealed by the explorations of Crete, Mycenæ, Tiryns, and Troy, but these do not exhaust the category of sites investigated both in the western and eastern lands around the Mediterranean, and in Africa as well as in Europe, for evidence as to the dwellings of man from Neolithic times to Hellenistic and Graeco-Roman, and from which it is now possible to differentiate between types, and to some extent at least to trace development.

The earliest and most primitive form of dwelling, after man had passed from the troglodytic stage of existence, is the single chamber or single cell, the house, as it were, in embryo. In the Neolithic period this may be circular or oval, and probably was usually so when constructed of saplings, closed with wattle and daub, but remains have been found of rectangular form, and in the Minoan age the simplest type, which is found in large numbers in Crete, in the Cyclades, and on most of the sites of Mycenaean civilisation, is the single chamber approximating to the rectangular and sometimes entirely so. Such a dwelling represents the earliest and most primitive form in rectangular domestic architecture, and persists throughout the Mycenaean period in houses of the poorer class. Later we find the same type recurring in some of the early houses of historic times unearthed by Barnouf between the Athenian Acropolis and the Pnyx.

The elaboration of the single-cell type is effected by the addition of cell to cell, and results in the house with two or more connected rooms, the inner entered from the

outer. Of this type it is not surprising that many examples have been found in Minoan houses, for it exists in houses still inhabited both in England and on the Continent. There is therefore nothing about it distinctively Greek.

When, however, we come to the house of two cells, of which the second and more protected becomes the more important, whilst the first is merely used as an entrance hall or *prodomos*, we are at once in presence of a distinctly Greek type, of which very early examples have lately been brought to light by the excavations of the British School at Phylakopi in Melos. A large cell or hall, approached by a smaller *prodomos*, formed the *megaron*, which we may regard as an essential feature of a Greek house. In the Cretan dwellings we find the *megaron* as one of a system of communicating rooms, but in the mainland houses of early date we have a plan-feature that may be considered essentially Greek, the principal room or *megaron* quite isolated.

Another interesting feature in the early development of the house is the appearance of passages or corridors, the want of which would early make itself felt either with a system of communicating rooms or with isolated rooms side by side. In the great Cretan palaces long corridors leading from one part to another are a noteworthy characteristic, and in the mainland palaces with their several isolated *megara* their necessity has been imperative.

In quite early plans we sometimes find before the room or rooms open spaces, which would be of great practical use to the house-owner for his animals, &c., especially where the house was of small dimensions. In development, this courtyard is flanked by styes or byres for cattle, and in a still later development is sometimes entirely surrounded by chambers devoted to various uses. Possibly from the use of such courtyards in pastoral dwellings is derived the existence of the internal courtyards in Minoan and Mycenaean palace plans, though the exact rôle played by these evidently important features is still a problem worthy of investigation, but for which the time is not yet ripe.

In the Cretan palaces the large courts have an importance of their own, and the chief rooms do not necessarily give on to them, whereas on the mainland the court lies, as it were, before the house, which is approached by entering the *propylæum* and crossing it; it therefore assumes a secondary importance here, as simply leading to the large hall or *megaron* of *prodomos* type, as at Tiryns and Mycenæ.

In considering the arrangement of a Greek house we must, of course, distinguish between the palace of the ruler and the abode of a humble citizen confined to a limited area within the walls of a fortified city, but wherever space permitted we may be sure of finding the internal open court and the chief living room or *megaron* in which was the hearth for warmth, even if a separate place was provided for the kitchen. Some such type existed down to the third and second centuries B.C. Houses with two courts, as described by Vitruvius, were an elaboration of the simple type.

Those who would learn in detail of the knowledge of early dwellings, Greek and other, that recent archaeological investigations have brought to light should refer to a well-arranged collection of facts and theories contained in Miss B. C. Rider's recently published book\* on the Greek house. It is as well, however, not to follow too closely the assumptions of the form of Neolithic dwellings based upon the remains of buildings for sepulture, in which some of our modern archaeologists are too prone to indulge.

\* "The Greek House: Its History and Development from the Neolithic Period to the Hellenistic Age." By Bertha Carr Rider, Classical Tripos, Cambridge, M.A., D.Lit., Lond. Thesis approved for the degree of Doctor of Literature in the University of London. (Cambridge University Press, 10s. 6d. net.)



## NOTES AND COMMENTS.

AFTER being shelved for a long time as a luxury non-essential in war-time, the competition for the replanning of Dublin inaugurated by the Marquis of Aberdeen, president of the Civics Institute of Ireland, has been resuscitated, the designs have been examined by the jury, and the prize has been awarded to that submitted by Professor Patrick Abercrombie, of the Department of Civic Design, Liverpool, and Messrs. Sydney A. & Arthur J. Kelly, surveyors, of Liverpool. Honourable mention has been given to the designs submitted, among others, by Messrs. J. M. L. Bogle, City Engineer's Office, Liverpool; H. C. Burroughs, B.A., University School of Architecture, Liverpool; and O. Newbold, Liverpool. The adjudicators were Professor Patrick Geddes, of Edinburgh; Mr. C. J. McCarthy, F.R.I.A.I., city architect of Dublin, and Dr. John Nolan, of Cambridge, Mass. It is hoped to arrange for an exhibition of the designs in Dublin at an early date.

By the Duke of Sutherland's gift of 12,000 acres for a soldiers' and sailors' settlement an opportunity is afforded for a practical scheme of afforestation, as well as for the development of small-holding communities. Although some of the area is rough and heathery, it is fairly fertile, and comprises glens suitable for crofter settlements. The land is near Tongue, where is Millicent Duchess of Sutherland's dower house, in the north of Sutherlandshire.

The "Estates Gazette" describes Tongue as being in the heart of the "Reay country," which passed nearly a century ago from the Mackays, Lords of Reay, to the great house of Sutherland. The Tongue House, once the seat of the Lords of Reay, whose estates were added by purchase to those of Sutherland, is a nondescript, old-fashioned structure, but it is overshadowed by noble old trees and has gardens running down to the shores of the Kyle of Tongue, a sea inlet stretching miles inland. Adjoining the estate presented by the Duke are lands in Strath Naver belonging to the Congested Districts Board. It is understood that 5,000 acres are to be set apart for afforestation, and it is proposed to plant 300 acres a year so as to give employment not only to the new settlers, of whom there will be at the outset not more than twenty, but also to the men occupying the adjoining small holdings. The farmhouse of Borgie, which was converted into a shooting lodge by his Grace, and tenanted at one time by Lord Gladstone, will be acquired by the State as a residence and estate office for the head forester and his assistant, whom it is intended to appoint to superintend the forestry work. It will be sixteen to twenty years before the crop of timber can be reaped, and until the date of fruition approaches the construction of the light railway to carry the timber from Borgie to the sea at Port-Skerry will not be undertaken. The land to be appropriated to afforestation is regarded by experts as very suitable for the purpose, and there are good hopes entertained that this the first State forestry experiment in Scotland will meet with the measure of success which it deserves.

The combating of tuberculosis by the provision of additional accommodation in the homes of consumptives in certain of the poorer households as a means of extending treatment and preventive measures on economic lines, which is proposed to be tried in Aberdeen, has already been adopted in Edinburgh for a considerable period. The want had been long recognised by the Tuberculosis Dispensary, and to supply the want is one of the leading objects of the Tuberculosis Care Committee in connection with the dispensary. It is the committee's endeavour that the doctors' efforts shall not be frustrated by adverse domestic conditions, which it may be within their power to remedy. Want of suitable or sufficient accommodation is one such condition. On a report by the tuberculosis officer and visitors, the committee decide whether benefit might be given to the patient and his household by

enlarging or improving the existing accommodation. During the past year a considerable number of cases have been dealt with. Families have been moved into larger and more hygienic houses.

As to funds, it is understood that a proposal was submitted to the Public Health Committee that a municipal grant should be made to meet an expenditure which is desirable in the public interest. So far it has been held that no public money is available for the purpose. For the present the cost in Edinburgh has been chiefly met—and there is no reason why it should not be more widely met in a similar way—through the good offices of the Royal Victoria Hospital Tuberculosis Trust. That Trust, under the recently passed Provisional Order, continues the anti-tuberculosis campaign which led to the foundation of the Victoria Hospital, Dispensary, and Farm Colony, in so far as its objects are not connected with these institutions, or are outside the purposes, powers, and duties of the Corporation under the Public Health (Scotland) Acts and of the National Insurance Act. One such object is to afford assistance to tuberculosis persons and their households when such assistance is not available through any statutory authority.

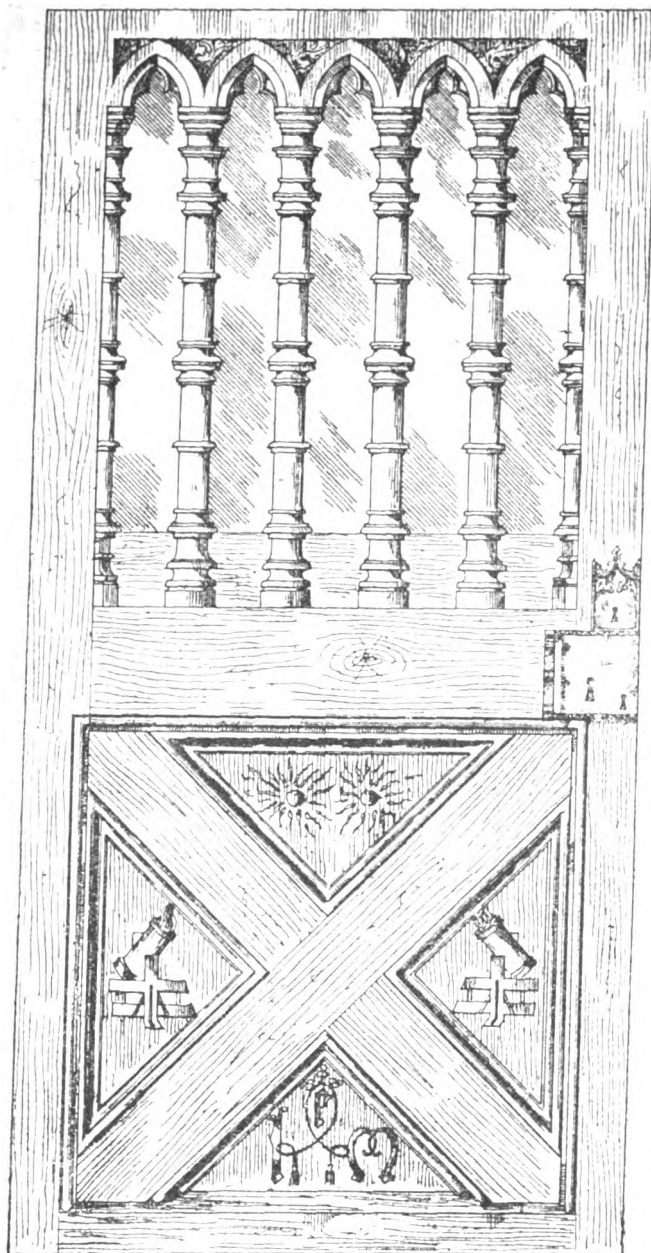
The position of contractors when their engagements conflict with action of the Government under the Defence of the Realm Act is not a happy one, if the decision in the case of the Metropolitan Water Board v. Dick, Kerr & Company is to be allowed to stand and form a precedent. The question has been raised in the House of Commons, when Mr. Peto asked the Prime Minister whether his attention has been called to the judgment in the case of the Metropolitan Water Board v. Dick, Kerr & Company, in which the decision of the Court was that a contract is not determined by action taken by the Ministry of Munitions which renders it impossible to continue its execution; and whether he intends to introduce legislation to define the position of contractors under conditions brought about by the Defence of the Realm Act and other exceptional legislation necessitated by the war?

The Prime Minister replied: This question is under consideration. A deputation representing certain contractors has been received by my right hon. friend, the Solicitor-General, and further information is now being obtained with a view to an early decision on the matter.

At the annual meeting of the Midland Centre of the Sanitary Inspectors' Association held at Redditch a paper on "Uniformity in Sanitary Administration" was read by Mr. W. Jameson (sanitary inspector of Redditch). The paper dealt with matters which Mr. Jameson said should be made uniform by legislation and not left to the local councils. In some duties there was considerable overlapping, which, he thought, could easily be avoided. Speaking of the Housing and Town Planning Act, Mr. Jameson said it must have never occurred to the framers that landlords would ask for so great an increase in the rents after making improvements to property. The responsibility of tenants also required some consideration. By acts of carelessness and dirty habits the premises were soon as bad as before the improvements had been carried out. The erection of buildings, drainage, and kindred matters were dealt with, the speaker arguing that in many of these matters more uniformity should be practised.

Mr. Thomas Binnie, F.S.I., Glasgow, has issued his award in an appeal to him as referee under the Finance (1909-10) Act, 1910, on the question whether a professional firm who own and occupy premises in West George Street, Glasgow, had the right to claim a substituted site value for their property.

The original site value was fixed by the provisional valuation at £4,400, and the appellants claimed a substituted site value based on the price paid by the original



DOOR OF LA TRIBUNE DE GRUUTHUSE IN NOTRE DAME DE BRUGES.

Measured and Drawn by CHARLES R. GILCHRIST, Architect.

The door illustrated in this measured drawing is known as La Tribune de Gruuthuse. It is of oak and gives entrance from the ground floor of the Church of Notre Dame at Bruges to the House and beautifully carved Gothic Private Gallery above (dated 1474), formerly the property of the family of Van der Gruuthuse.

firm when the property was transferred to them. They maintained that the firm as it at present exists was in law the same "person" as the firm which bought the ground in 1884. The Commissioners of Inland Revenue refused to admit the identity of the existing firm with the original firm, and disallowed the claim. The present appeal was therefore brought.

The referee has decided in favour of the appellants. In his award he said that in twenty years the personnel of practically every firm was bound to change, either by the death or retiral of the older partners or by the natural assumption of younger partners. On the whole, it appeared to him that the true test was continuity of interest, and he thought that there was quite sufficient proof of such continuity to warrant him in deciding the appeal in the appellants' favour.

The skill and efficiency shown by our New Armies after a period of training absurdly short according to pre-conceived military opinion, connotes intense application to the special study of modern warfare in all its many ramifications, which has left little time for leisure and sufficiently explains the following alteration in their Regulations for Technical Schools, &c., in England and

Wales for the school year 1916-17 by the Board of Education.

Part IV. (Special Regulations for Grants in aid of Instruction for Men serving with the Colours) is withdrawn, as it appears to the Board from the returns of the work done during the past winter that there is now little demand in camps for classes of an educational character, such as cannot be organised under the ordinary conditions of Chapter 2 of Part I. of the Regulations.

The Regulations on Grants to Art Schools are wisely, we think, altered so as to run as follows:—

" 51.—(a) An inclusive annual grant will be made in respect of every school of art, and will be assessed by the Board after consideration of the volume, character, cost, and merit of the work done in the school, and of the efficiency with which the work is organised and co-ordinated with that of other schools and classes in the locality.

" (b) The grant will be made during the financial year extending from April 1 to March 31 in respect of each school completing a year of work on or before July 31 in that financial year, and the amount conditionally payable during each financial year will be announced to the school in advance of that year.

"(c) The inclusive grant in respect of a school of art may cover the work of a full-time or part-time junior department attached to the school.

"(d) In assessing the grant to a school of art the Board may take into account, in addition to the work done in subjects of art—

"(i.) Instruction in subjects of general education forming part of the course of a junior department; and

"(ii.) Instruction in literary or pedagogic subjects forming part of an organised course specially approved by the Board for students of suitable types in the school of art proper.

"(e) No grant will be paid in respect of a closed school in excess of the net outstanding liabilities on the maintenance account, except in the case of a school maintained by a local authority."

The report of the Church Crafts League, which we give elsewhere, well sets forth the work of that organisation, with whose campaign against the productions of the tailor-ecclesiastical art furnishers we are in the fullest sympathy. There is no need for the clergy and generous donors to fill our churches with the stock articles of the tradesmen when admirable craftsmanship is at their disposal at no increase of cost.

## ILLUSTRATIONS.

### DOWART CASTLE, ISLE OF MULL.

THE extensive alterations involved in the restoration scheme carried out at this ancestral mansion were designed by Messrs. John Burnet & Son, whose photographic illustrations of plans, sections, and elevations, both before and after restoration, were on view in last year's Royal Scottish Academy.

The external additions related, in the main, to the building of new roofs and chimney-stacks, repairing of walls and windows, as well as the inclusion of gable windows in the new roof structures. By means of stone steps the entrance has been raised.

From an examination of the plan it will be seen that the ground-floor alterations consisted largely of arranging a series of servants' and store-rooms around the courtyard, and replacing the small courtyard by a wine cellar and passage-way. On the first floor a winter garden with wood ceiling and business-room take the place of the small courtyard; and a large drawing-room now occupies the area hitherto taken up by the keep. The additions in the right wing comprise bed, bath, and dressing-rooms, together with a small sitting-room.

A large number of contractors were employed. The restoration of walling, &c., was done by Messrs. J. H. White & Son, of Glasgow and St. Andrews. The finishings, plumbing, and slating were carried out by Messrs. Wylie & Lochhead, Ltd., Messrs. William Anderson, Ltd., and Mr. A. Mackenzie Ross respectively, all of Glasgow. Messrs. A. & J. Scott, Glasgow, did the painting; Messrs. David Fisher & Sons, Edinburgh, the plaster-work; and the wrought-steel casement windows were executed by Messrs. Henry Hope & Sons, Ltd., of Birmingham. Messrs. James Boyd & Sons, of Paisley, attended to the heating arrangements; Messrs. Claud Hamilton, Ltd., the electricity. The three other contractors were all Glasgow firms:—Messrs. Waygood-Otis, Ltd., who supplied the lift; Messrs. J. Caird Parker & Co., the grates and kitchen range; and Messrs. Wilson, Kimmond & Marr, Ltd., who attended to the water supply and drainage.

### DESIGNS FOR SMALL COUNTRY HOUSES.

THESE sketch designs were prepared by Messrs. Ernest Runtz, Son & Farrow for an estate in Surrey, but their realisation has been hindered by the war.

## THE CHURCH CRAFTS LEAGUE FIFTEENTH ANNUAL REPORT.

IN presenting the fifteenth annual report of the Church Crafts League the committee desire, for the information of those who may see this pamphlet for the first time, to make a brief statement of the objects which the League exists to promote and to give a short account of the work which it already has been able to accomplish, in the hope that a larger measure of support may be accorded to it by those who desire the improvement of art in churches.

The Church Crafts League was formed at a meeting held in Leighton House on December 15, 1899, with the object of infusing new life into the building, decoration and furnishing of churches. It proposed to bring those who were responsible for the building of new churches and for adorning and furnishing existing buildings into direct contact with artists and craftsmen of assured merit without the intervention of any commercial medium. It was evident to the founders of the League that some kind of permanent organisation was necessary in order to bring about so desirable an end, for not only had public taste to be influenced and educated in these matters, but the authorities of a parish church, however much they might desire to obtain the best workmanship available within their means, had no opportunities for discovering the craftsman who was best qualified to undertake the work which had to be done. In these circumstances they were compelled to turn to such advertisements as came in their way and to select what they wanted from a tradesman's catalogue. The disastrous results of this system are too well known to need description; a standard of ecclesiastical art has been set up in England which bears no possible relation either to English art or to English artists and the immense religious possibilities which underlie the use of Christian symbolism through the medium of a skilled craftsman have been almost entirely lost in a flood of mechanical reproductions which often are little more than lifeless caricatures of the craftsmanship of the Middle Ages.

The first practical object of the League has been to act as a medium of communication between the church authority and the artist. The committee includes a number of persons who are in close connection with the various kinds of arts and crafts, and all those who require advice on any subject connected with church building or furnishing are at liberty to apply to the League for guidance, which is freely given in every case. It is obvious that this advice, if it is to be of real value, should be quite disinterested in character and, for this reason, no fee or commission is charged either to the person applying for assistance or to any artist or craftsman who may ultimately obtain work in consequence of the League's advice. In our fifteen years' existence we have advised in about 1,700 cases, and there are now nearly 400 churches which have benefited by our guidance, while, in addition, there are a very large number of clergy and others who have employed artists through the indirect agency of the League in regard to which it has not been possible to keep an exact record. These figures, although relating to small pieces of work in the majority of cases, are sufficient to show that the League is doing a work for which there is a real need and which does not overlap the sphere of activity of any other organisation.

A second practical object which the League has had constantly in view is that of educating public taste in the direction of our ideals. We have sought to do this by means of meetings, lectures and exhibitions. Up to the present we have held thirty-four meetings to which the general public have been invited and the subjects discussed have included "The Importance of Reality in Art and Religion," "The Art Patronage of the Church in Italy during the Fifteenth Century," "The Origin and Symbolism of Church Ornaments," "The Growth of an English Parish Church," "The Influence of Ceremonial on the Fabric and Ornaments of Churches," "Altars; their Arrangement and Ornaments," "Old City Churches



and their Fittings," "The Decoration and Furnishing of Churches," "Symbols and Pictures of Christ in Ancient and Modern Art," "The Ornaments of a Mediaeval Parish Church," "Pictures in Churches," "English Rood Screens," "Symbolism from the Craftsman's Standpoint," "Churchyard Memorials," "Stained Glass Windows," "What do we mean by Restoring a Church?" "Southwell Cathedral," "Mosaics," "Art and the Church," and "Ely Cathedral." The speakers and lecturers at these meetings have included the Bishop of Winchester, the Bishop of Salisbury, the Dean of Wells, Mr. Cuthbert Atchley, Rev. Maurice Bell, Dr. Davey Biggs, Rev. Percy Dearmer, Mr. Arthur Dixon, Mr. F. C. Eeles, Mr. Roger Fry, Mr. Robert Hilton, Mr. Henry Holiday, Sir Charles Holroyd, Mr. Hamilton Jackson, Mr. Selwyn Image, Mr. Stirling Lee, Mr. W. R. Lethaby, Rev. Lawrence Phillips, Mr. J. T. Micklethwaite, Mr. Philip Norman, Mr. T. M. Rooke, Mr. Edward F. Strange, Canon Rawnsley, Mr. Ernest Radford and Mr. H. Wilson. Local meetings to explain the aims of the League have been held at Durham, Chester, Cambridge, Beckenham, Croydon, Oxford, Newark-on-Trent and Gravesend, while visits have been arranged on behalf of the members to such places of interest in London as Westminster Abbey, Southwark Cathedral, the Tower of London and the Charterhouse. The League has also held exhibitions at the Church Congresses held at Brighton, Northampton, Bristol, Liverpool, Barrow-in-Furness and Yarmouth, while the chairman and secretary respectively were among the appointed speakers at the Newcastle and Barrow Congresses.

During the past twelve months the League has dealt with sixty-four applications for advice, making a net total of 1,703 since the foundation of the society fifteen years ago. It will be noticed that our last year's total was somewhat below the average, but this may be accounted for by the unsettled conditions resulting from the war. A small stream of applications has already begun in regard to advice concerning war memorials, and in this direction we are making a special effort to direct the pious intentions of bereaved relatives into the proper channels. We hope that the labours of the League and other kindred organisations will result in a prevention of those errors of taste which marked the close of the South African war at the beginning of the present century. A complete directory of artists and craftsmen, with a few illustrations of their work, may be had on application to the secretary.

From among eight candidates who have offered

themselves for artist membership during the year, three have secured election, and the committee would point out that every care is taken that artist membership of the League should be a guarantee of efficiency. No candidate is elected to artist membership until specimens of his or her work have been most carefully examined by a meeting of artists, and each of the new members enrolled this year has received the unanimous consent of all those who have inspected the work submitted.

In view of the proposed Church Congress at Southend, the late secretary made arrangements for our usual exhibition of work, but the abandonment of the Congress caused these arrangements to fall through. The committee would venture to suggest that, in view of the experiences of the years 1914 and 1915, the standing committee of the Church Congress would save church societies much trouble and some expense if they would defer their announcements of Congress meetings until such time as they were in a position to carry the project through.

#### DEVELOPMENT OF LONDON.

THE subjoined paper by Mr. Davidge, which we reproduce from the "Journal of the London Society," is a most admirable epitome of London's civic history.

The names of London still tell us of London's history, but which of us who glibly speak of "Blackfriars" thinks of the black-hooded figures whose monastery stood here, close to that standing on the other side of the Fleet westward, which was the home of the "White Friars"? Carmelite Street we know and Whitefriars Street, but who of us think of the centuries during which those names have lingered here hard by St. Bride's, and St. Bride's well, long afterwards called "The Bridewell"—Bridewell Palace and Bridewell Prison?

Dr. Johnson—who was he that he should obscure the real history of Fleet Street with his bulky and bucolic person? A charming man, no doubt, but only one out of the hundreds of such ponderous personages who crowded the coffee-houses of the eighteenth century.

As well cloud the horizon of history and befog the beginner by getting him to trace the daily doings of Northcliffe, or any other of the passing shades of Fleet Street, all of whom live but their little day and pass away.

London—every part of London—is full of the memories of all the centuries, and the very stones of London speak to us, not of one century, but of wellnigh a score of centuries. We can at our leisure hark back



to what period we will, even to the days of the Crusaders, whose church of St. Bartholomew in "Smoothfield" is still with us. We can follow the knights who rode out along "Giltspur Street" to their famous tilting ground of "Smoothfield," hard beneath the City walls. We can trace the line of those ancient walls from St. Giles, Cripplegate. We can walk outside the wall along Fore Street and note the frowning Barbican, or we can walk out through Aldermanbury Postern out on to the "Moorfields," where centuries of archers have been trained.

We can, if we will, transplant ourselves to the days of the Tudors, of King Henry or Elizabeth. All along the Strand, in those days, were the residences of the great men of the land. Outside Temple Bar, going westwards, the very names of the streets leading down to the river tell us of the many great houses that stood all along the Strand to Charing Cross and down to Westminster.

Arundel House, Somerset House, the Savoy, the Hotel Cecil, the home of the Cecils and the Russells, Durham House, where now stands the Adelphi, York Watergate, where formerly stood York House, Northumberland House, where now is Northumberland Avenue, and finally the White Hall of the King, and so on to the West Minster, passing on our way the Great Scotland Yard, where for so many years in the time of the Edwards the King of Scotland was kept a close prisoner, with many of his compatriots. Scotland Yard was started to keep an eye on Scotchmen.

All this is definite and well known, but when we seek to build up London's history from the beginning, we are met by many uncertainties, which at present legend alone can fill.

Somewhere in the first century of the Christian era, the Romans undoubtedly established a fortified camp on one or other of the little hills adjoining Walbrook. There may have been early walls round the settlement, but the City walls which we can still trace were built towards the end of the Roman period. The legend then that "Brutus buylded London," if true, can only refer to the first small settlement which undoubtedly was established by the Roman General, whoever he was, who then had command of the London District.

Fourteen feet below the present surface in Lombard Street and Birchin Lane have been discovered many Roman pavements and remains of buildings showing a very high standard of development, and it can well be believed that in the four hundred years of Roman civilisation great advances were made in all directions.

Principal among the causes in this well-established civilisation were the six Roman roads which ran from London in all directions. Everyone of these Roman roads is still with us, and we use many of them daily without thinking of it.

The "Watling Street" of Roman days, from Dover to London and Chester, is still for a large part of its length in daily use. The Shooter's Hill Road, for instance, at Blackheath, aims straight as an arrow for Hyde Park Corner; and from Hyde Park Corner, the northern arm of Watling Street runs equally straight along the Edgware Road to Chester and the North.

The Stane Street, from Chichester to London Bridge, is clearly traceable on the modern map. South-west from the Elephant and Castle to Kennington and Clapham Common and on through Tooting and Morden; northward, from old London Bridge, this street runs on due north from Bishopsgate through Tottenham and Waltham Cross away to Doncaster and Lincoln.

The Roman road from Silchester and Dorchester is still the main road from Staines to Brentford, and on to Hyde Park Corner; and eastwards from beyond the City boundaries at Bishopsgate, not far from the present-day Old Street, we still find "Roman Road" leading to Old Ford, Stratford, and on to Romford and Colchester.

All through the Middle Ages the Roman-walled city sufficed for the population. By the time of Queen Elizabeth, however, London had grown out beyond the walls, but was barely beyond the present liberties of the

City with a sprinkling of noble houses along the Strand to Westminster.

It will be remembered though, that even in those days alarm was felt at the huge growth of the City, and the famous royal proclamation forbidding all new building within three miles of the City gates is still on record.

By the time of the Commonwealth, however, London had grown out westwards as far as Piccadilly and Pall Mall, and the plan of the City and suburbs as fortified by order of Parliament in 1642 shows a London extending from Piccadilly to Whitechapel and from Shoreditch to the Elephant and Castle. If only that belt of ramparts had been preserved as open spaces, what a magnificent ring of boulevards London would have possessed.

After the Great Fire of 1666, plans for rebuilding the City were prepared by Sir Christopher Wren and John Evelyn. The City Fathers, however, even then, thought it was much too late to do anything with London, and the only part of Sir Christopher Wren's plan which was actually put into execution was the reservation of a public quay, forty feet wide, along the whole river front of the City, from Blackfriars to the Tower. A century and a half later, however, Wren's public quay—in its way a magnificent forerunner of our Thames Embankments—was gradually encroached on by the owners of the adjoining warehouses, and altogether filched from the public—so much so that in 1821 it became necessary to whitewash the offenders by Act of Parliament. The course of the quays can still be traced along the whole length of the City.

In the middle of the eighteenth century and the early years of George III., from 1760 onwards, before the blighting influence of the Napoleonic Wars, there were many public improvements in all directions. The well-known Euston Road was laid out in 1756, in the open country, a mile or more away from London, with a width of 150 feet between the buildings; and this was followed by the General Turnpike Act of 1773, fixing a minimum width for such roads of 60 feet, as compared with the niggardly 40 feet required by our modern by-laws.

The forerunners of the London Society, too, were at work in laying out the spacious squares and streets of the West End. Prominent among these enthusiasts was the architect, John Gwynn, whose proposals for the improvement of London are very remarkable. There is hardly an improvement that has been carried out within the last 150 years which is not shown on Gwynn's plan of 1766. Gwynn did not see these carried out in his lifetime, but his work has been of inestimable service to London improvements.

To name only a few, we find the Thames Embankment, Waterloo Bridge, the new street between Holborn and the Strand, Trafalgar Square, the new entrance to the Mall, and many others all suggested on this plan a century or more before they were carried out.

If the great plan on which the London Society is now busy be of equal service to the coming generations, its work will not have been in vain.

It is noteworthy, too, how after the close of the Napoleonic struggle there came another great period of activity. Waterloo Bridge was built as a perpetual memorial of the great war, and Regent Street (1819) and many other improvements were inaugurated.

Much has been done in the course of the century that has elapsed since then. In the City every one of the bridges has been built or rebuilt, King William Street and Moorgate Street, Queen Victoria Street and Holborn Viaduct have been cut. The western portion of Cannon Street and Farringdon Road have been made, and scores of widenings have taken place.

In the West End, in addition to Regent Street, New Oxford Street has been cut; Victoria Street, Westminster, formed; Whitehall has been widened; Northumberland Avenue, Charing Cross Road, Shaftesbury Avenue, and of course Kingsway, and many miles of other internal improvements have been brought about.

All these "surgical operations" in the built up area

of London have been performed at very considerable cost. Meanwhile, however, we have to remember that out in the suburbs thousands of miles of new streets have been formed without plan or scheme, with little or no consideration for the public weal.

What the London Society desires is to bring order out of chaos, to ensure that the future development of London shall proceed on a well-considered plan, and that public money when spent shall be spent to the best advantage.

In its successful opposition to the waste of £170,000 on Charing Cross Railway Bridge, the Society has taken the first public step to secure the further development of London on sound æsthetic and economical lines.

Much has been done by past generations for the London of the past; much is being done now for the Greater London of the present, but still more remains to be done for the still Greater London that is to be.

### WHITECHAPEL ART GALLERY.

THE excellent work being done, on somewhat original lines, by the Whitechapel Art Gallery, is indicated by the following report of the trustees for the past year:—

The Nature Study and Art Exhibition was held early in the spring, and was admirably organised and arranged by the newly appointed art director, Mr. H. Samuel Teed. It was well attended throughout by visitors from all parts of London, and proved especially attractive to the school children of the district, who attended in very large numbers.

During the summer the Gallery was lent to the members of the Toynbee Art Club for their annual exhibition, which, as usual, created much interest, and was very favourably noticed by the Press.

The Exhibition of Design and Workmanship in Printing was held in October and November. This was primarily intended to appeal to such as had a special interest in, or possessed an expert knowledge of printing. The exhibits, however, were grouped in a manner so instructive and artistic that visitors were unanimous in praising an exhibition that was an object-lesson in the art of arrangement. In this connection it may be mentioned that the exhibits of printing shown in the first instance at the Whitechapel Art Gallery have since been shown at Liverpool, Leeds, and Leicester, and will shortly be shown at Edinburgh and Derby and other places in this country; and it is in contemplation to send them for exhibition to South Africa. This is a gratifying proof that the movement so successfully inaugurated at this Gallery for the encouragement of good printing in all its branches is creating widespread interest.

Considerable progress has been made in carrying out the scheme for the Canon Barnett Memorial. The roof of the vestibule has been entirely altered and greatly improved, and the woodwork has been silvered; while the walls have been covered with marble, in accordance with the original plan. With regard to the mural paintings on each side of the vestibule, which were to complete the scheme of decoration, the trustees deeply regret to announce that Lieut. Henry Fawcett Garrett, the artist whose designs for the purpose had been selected, was killed in action at the Dardanelles last summer. They are compelled, therefore, to consider the steps which should be taken for the completion of this part of the work.

In the introduction to the report for 1914 mention was made of the fact that the trustees had recently lost the services of Mr. Gilbert A. Ramsay, who had been appointed Superintendent of the Glasgow Art Galleries and Museums. Very shortly after that report was in the hands of our subscribers, news was received that Mr. Ramsay also had fallen in action at the Dardanelles, to the great regret of all who knew and esteemed him.

Mr. H. Samuel Teed, our art director, joined the Army last autumn and was given a commission in the Berkshire Regt. The sad news has now reached us that he was killed in action in France on July 25. We are sure all our friends will unite with us, in our feeling of deep and sincere regret, at the loss of a young and gallant life, that was so full of brilliant promise.

### NATURE STUDY AND ART EXHIBITION, 1915.

This Exhibition was opened with a Private View, which was very well attended, on March 18, and closed on May 8.

It was divided into three main sections—

1. Objects of natural history, such as aquaria of fish, examples of tree and plant life, stuffed animals and birds, cases of eggs, butterflies, &c.

2. Studies from Nature by living artists and some of the older masters, such as studies of animals, trees, clouds, foregrounds, flowers, &c., &c.

3. Pictures, including landscapes, animal paintings, flowers, and still life; sculpture; heraldic designs; Oriental work and modern decorative work; and illustrations.

There was also a sub-section devoted to school work, consisting entirely of Nature study drawing, decorative designs, &c.

Each of the above sections was well and adequately represented, and together they formed a very complete, instructive, and interesting series of exhibits.

Lectures in connection with the Exhibition were given at Toynbee Hall, and were well attended.

A very large number of school children visited the Gallery and were conducted round by the Art Director.

About 60,000 people visited the Exhibition.

### TOYNBEE ART CLUB EXHIBITION, 1915.

In August 1915 the Toynbee Art Club held their fifth Exhibition in the Upper Gallery.

Owing to the altered circumstances occasioned by the war, the usual practice of a formal opening by the Mayor of the borough was dispensed with, and in its place a Private View was held, to which members and their friends were invited. The Press also attended.

The Secretary, in a few words of welcome to those present, explained that a considerable number of the members of the club had responded to the call of duty and had joined one or other of the Services. Consequently the number of exhibits was much smaller than on previous similar occasions. Nevertheless, the committee felt that it was in the best interest of the club to hold a Summer Exhibition as heretofore, and to carry on its work with such members as remained.

The Exhibition, consisting of 173 entries, comprised 22 black-and-white, 81 water-colour, and 70 oil paintings.

The interest of the Exhibition was much enhanced by contributions of pictures from the president of the club, David Murray, Esq., R.A., A.R.S.A., and Burleigh Brühl, Esq., R.B.A., vice-president.

The Exhibition gave ample evidence of the serious efforts of the members to depict the various moods of Nature—in fields, in the woods, and on the river; and, representing as it did work done entirely since the last Exhibition, spoke well for the enthusiasm of the contributors.

The Gallery was visited by many thousands of people during the two weeks the pictures were on view.

The thanks of the Toynbee Art Club are due to the trustees for allowing them the use of the Gallery.

### EXHIBITION OF DESIGN AND WORKMANSHIP IN PRINTING, 1915.

The Exhibition of Design and Workmanship in Printing was opened on October 13, and closed on November 24, 1915.

A Private View was held on October 12.

This Exhibition was organised in conjunction with the Design and Industries Association.

The main object which the committee had in view was to make the Exhibition representative of the best work that this country could produce, and to endeavour to get together examples of printing possessing in the highest degree pronounced qualities of design and craftsmanship. By general consent the object was successfully achieved.

### THE MODERN FARMSTEAD.\*

By ARCHD. E. CHASEMORE (M.S.A.).

IN planning a farmstead it is necessary to know the kind or mode of farming adopted, so that buildings shall not be unnecessarily provided or omitted, also local peculiarities and customs, and the manner in which the work of the farm is carried on. It is, therefore, impossible to describe in this short article the requirements of the modern farmstead suitable for farmers of all sizes and descriptions, and this article is confined to an average mixed farm of five or six hundred acres.

*Site.*—The selection of the site is generally governed by existing conditions and considerations as regards convenience of cartage to and from the various fields, access to main roads, distance from railway station or market town, aspect, water supply, and drainage. In many parts of the country farmsteads are so placed that a considerable amount of cartage is necessary which might have been avoided in carrying crops and distributing manure—a very important point in the matter of economy. The question of elevation also appears to have had little consideration, although in cases of farmsteads of early date, when methods and appliances of the present-day were unknown, considerations of water supply compelled the selection of a comparatively low site. On the other hand, the farmstead sometimes occupies the highest position on the farm with perhaps the sole advantage to the farmer of being able to command a view of his land, providing his residence is advantageously placed, but with the distinct disadvantage at harvest time of having to draw loaded wagons up hill, returning empty downhill, necessitating probably the employment of three horses to a team instead of two.

*Aspect.*—The question of aspect must not be lost sight of, as it is important that cattle should be protected as much as possible from cold winds and rains, and for that reason it is best to place the higher buildings on the north side, and the yards to the south, with the lower buildings on the east and west sides, and where possible a view of the yards, &c., should be obtainable from the farmer's or bailiff's residence.

*Water Supply.*—Where, as is most often the case, a supply of water cannot be derived from a company's main, the sinking of an artesian well is necessary; and the provision of a ram pump in the power-house to deliver the water into a cast-iron tank of about 2,000 gallons capacity fixed on a tower constructed of steel framing, and at a sufficient height to ensure enough pressure to all parts of the buildings and residence. As a precaution in case of fire one or two emergency hydrants should be placed in convenient positions, with a length of hose attached.

*Drainage.*—Drains should be laid outside the buildings wherever possible, in straight lines from point to point, and manholes placed at important junctions, and wherever the drain has to change its direction. The pipes should be of glazed stoneware, socketted, jointed in cement, and laid on and embedded in cement concrete to a fall of not less than 1 in 40 in the case of 4-inch pipes, and 1 in 60 in the case of 6-inch pipes. The whole of the drainage from buildings accommodating live stock should discharge into the yards, and then pass into the liquid manure tank. The rainwater from roofs should be conveyed by an independent drain into a water course or pond. The drainage of the residence should be kept separate from that of the farm buildings.

*Lighting.*—A public supply of electric light or even gas is seldom obtainable, and in the majority of instances the primitive method of lighting by oil lamps is adopted, a means neither convenient, safe, nor particularly economical. In recent years great improvements have been made in acetylene gas lighting, but the writer has found by experience that, particularly where power is provided for other purposes, electric light is the most satisfactory, and more economical in running. The same engine necessary for other purposes can be employed to drive a dynamo generating the electricity, and by the installation of a battery of accumulators, a supply of light can be obtained. Moreover, it is safer than any other means of lighting. The wiring should be run in screwed steel tubing, with watertight switches. Besides the house the most important of the farm buildings required to be lighted are the dairy, cow house, feeding passages, stabling, harness room, coach house, bullock fattening sheds, calf pens, infirmary, power house, workshop, blacksmith's shop, granary, mixing and root house, office and lavatories. The writer knows an instance of a farmstead where every building is lighted with electricity even to the piggeries, but only to those buildings in which work has to be done early and late is it necessary to provide a supply of artificial light.

*Roofing.*—The choice of materials for roofing is governed to a certain extent by the district. Tiles, slates, and corrugated iron are those most generally used. The most pleasing in appearance are tiles, and the Broseley or similar make are found to be most durable. Corrugated iron should only be used for open buildings, such as Dutch barns, as trouble from condensation is often experienced when this material is otherwise adopted.

*Accommodation.*—Having selected the site, with due regard to the foregoing points, the question of accommodation has next to be considered, bearing in mind convenience in grouping. Where much stock is kept, the mixing, root house, and cake store should occupy as near as possible a central position so that the minimum amount of labour in feeding is employed. Adjoining the mixing house should be the power house, boiler house, chaff bin and straw barn, with granary over mixing and root house. In the rear of these buildings should be a feeding passage leading right and left to the cow house, bullock fattening sheds, stabling, piggeries, hen house, &c. A wagon and cart shed, implement shed, workshop, and blacksmith's shop should be placed on the north side of the other buildings, and not too far removed from the cart horse stable. A dairy, and milk cooling and separating room are an indispensable adjunct to a dairy farm. An isolated box or infirmary should be placed away from the buildings accommodating live stock, at the same time conveniently situated. An apartment seldom to be found in a farmery is an office for the farmer, and where the residence does not actually adjoin the buildings, such accommodation will be found a great convenience, and save many a trot to and from the house, and enable him to keep in close touch with all that is going on in and about the buildings. A point of much importance, for success in farming not only means knowledge and experience of the industry, but the ability to direct and administer such knowledge which can only be attained successfully by keeping a watchful eye on the farm hands. A great difference of opinion exists amongst farmers in the matter of stock yards, the majority perhaps preferring the open yard with a shelter on one or more sides; the author, however, favours a yard at least half covered, as it has been proved that manure from covered yards is far richer in quality, and consequently more valuable than that exposed to the weather, which loses much of its high qualities by the action of rain and sun. The rick yard where possible should be situated on the north side, and the provision of one or more Dutch barns is a valuable addition to the farm, effecting a saving in thatching, and has often been the means of preventing damage to crops due to their exposure to heavy rains before the work of thatching can be accomplished. A convenience rarely found about farm buildings is that of water or earth closets for the farm

\* From the "Journal of the Society of Architects."

hands, and in the case of a dairy farm a bathroom and lavatories. The importance of such accommodation from a sanitary point of view is obvious. The position of the farmhouse is an important point in planning the farmstead, for reasons already given. The windows of the principal living room, and the farmer's bed and dressing rooms should command a view of the buildings. The accommodation of the farmhouse must necessarily vary as regards the number of bedrooms with the size of the farmer's family, but in any case it is necessary to provide entrance and back halls, a good dining room, a sitting room, a business room, kitchen, scullery, pantry, larder, boot room, coal and wood house, fruit store, dairy, and one or two w.c.'s, together with bathroom and good cupboard accommodation. As agricultural land is of less value than the ordinary building site, the space occupied by the farmhouse need have little consideration, and the convenience of a two-storeyed building can be taken advantage of in preference to a building with the same accommodation occupying less area with more storeys.

We will now deal with each of the foregoing buildings, or departments, separately, beginning with the power house or engine room.

**Power House.**—The saving of labour is of more importance now than ever, therefore all such work as chaff cutting, bean kibbling, root slicing, oat crushing, &c., should be performed by machinery supplied with energy generated in the power house. There are many makes of steam, gas and oil engines, suited for farm work, but the modern oil engine perhaps commends itself as being most suitable by reason of its simplicity and compactness, at the same time requiring little attention. The engine should be of sufficient horse-power to drive a dynamo for generating electric light, as well as the various machines, and pump. A building to accommodate an oil engine of the size required for a farm similar to that under consideration, together with dynamo, ram pump, &c., should be situated on the ground floor, and need not be more than about 20 ft. by 10 ft., and should be built of fire-resisting materials—i.e. brick walls, steel and concrete roof, and concrete floor. It is important that no direct communication be made between this and other buildings, and for that reason the power should not be transmitted direct from engine to granary above, but by means of a countershaft running through one of the side walls with pulley wheel on the outer side, so that the belting to shafting on the floor above does not pass through the ceiling of the engine room. Apart from the engine and dynamo, a switchboard, the pump for water supply, a small bench with vice and board for tools, and a bin or buckets for sand is all that is necessary to provide in this apartment. The oil should on no account be stored in the power house, but kept in a small store constructed of corrugated iron well away from the other buildings, and only a sufficient supply for the day's consumption kept within the building.

**Accumulator Room.**—On one side of the power house, a room about six feet by twelve feet to accommodate a battery of accumulators should be provided, constructed in a similar manner.

**Mixing and Boiling House, and Root House.**—Adjoining the power house should be the mixing and boiling house, about thirty feet by twenty feet, provided with coppers, communicating with the root house, about twenty feet by twenty feet, the former having a doorway affording direct access to feeding passage.

**Chaff Bin, Corn Barn, and Straw Barn.**—In close proximity with the root house should be the chaff bin, about fifteen feet square, with corn barn, about fifty feet by twenty feet, and straw barn, say seventy feet by twenty feet adjoining. Both the latter buildings should be double storey in height, and be provided with folding doors large enough to admit a loaded wagon.

**Wagon Shed.**—In the same range of buildings should be a wagon and cart shed, about sixty-five feet by twenty feet, which would be sufficient to accommodate four wagons, six carts, and two lorries.

**Granary.**—The granary, the only apartment necessary to be situated on the first floor, might be placed over the engine room, mixing and boiling house, root house, chaff bin, and wagon shed. It is important that the floor should be of sufficient strength to carry the dead weight of the grain calculated on a basis of 2 cwt. per foot super, and the vibration of the chaff cutter, oat crusher, and other machines, and if constructed of wood the boarding should be of ample thickness, and tongued and grooved to prevent grain or dust falling through the joints to the apartments below. Provision should also be made in the strength of the roof principals if in wood to carry the shafting, and if in steel, other means of supporting the shafting should be adopted. The position of the machines consistent with the line of shafting, and the arrangement of bins requires careful consideration. The provision of a hoist for leading in and out of the granary is a means of saving much time and labour.

**Feeding Passages.**—Feeding passages between mixing house, root house, and chaff bin, affording access therefrom to the cow house, bullock sheds, piggeries, stabling, and stock yards should not be less than four feet six inches in width, and provided either with a railway or overhead runway. The latter, although rather more costly, has the advantage of being independent of the floor, therefore, grooved rails fixed in the floor which harbour dirt are dispensed with, moreover, all difficulties due to floor rails, crossing gutters or encountering awkward differences of level are entirely avoided. This more modern means of transit can be adopted to meet all requirements as regards curves, junctions, &c., and can be readily fixed in existing buildings, whereas to instal railways involves breaking in and relaying much of the paving. The overhead runways can also be used for manure carries, and continued outside the buildings to the manure pits.

**Cow House.**—The cow house should be constructed entirely of impervious materials. The size of the shed depends on the number of cows to be accommodated. The following dimensions however apply to sheds accommodating any number of cows. Width of stall, three feet six inches, depth of stall (exclusive of feeding trough), three feet six inches, trough, two feet three inches overall, depth of standing from trough to gutter, five feet three inches, width of gutter one foot six inches, depth of gutter on the cows' side, seven inches, and on the gangway side, three inches to four inches, width of gangway from gutter to wall or when the cows are arranged back to back, gutter to gutter, eight feet minimum. Width of feeding passage five feet, height from floor to principals of room not less than nine feet. The foregoing dimensions have been found by the writer suitable for the accommodation of Shorthorn cows; but where a smaller breed of cow is exclusively kept, the dimensions may be somewhat curtailed. As regards construction and planning the points chiefly to be borne in mind are light, ventilation, and cleanliness. With the exception of doors, roof boarding and rafters, the use of timber should be avoided. The walls should be of hard burnt bricks, faced on the inside with white glazed bricks to the height at least of five feet, when the question of cost will not permit so facing to the whole height. The windows which should have a collective area equal to at least one-tenth of the floor space should be of steel with the upper part made to open inwards and hinged at the bottom, and provided with side cheeks to prevent draughts, and direct the current of air upwards. The roof should be open and have steel principals, and the underside of the rafters ceiled with lath and plaster, or plaster slabs, in order to prevent any accumulation of dust, and to provide greater facilities for lime whiteing, and add to the light of the building. In addition to the windows, ventilation should be provided in the roof, and where the cow house adjoins another building thus preventing the construction of windows in both external walls, lantern lights constructed in the roof may be neces-



sary. Impervious paving is essential, and no better results can be obtained than by adopting a granolithic paving laid in situ on a good foundation, by which jointing is avoided. The surface, however, can be grooved to prevent slipperiness. Attention should be given to falls to the gutters and outlets, but it must be borne in mind that too much fall may render the paving dangerous. The writer has found that a fall of one and a-half inches in the depth of the standing, and one inch in five feet in the gangways is sufficient. With regard to the feeding troughs, no better provision can be made than by adopting concrete as the material for construction, as in the case of the paving; all joints can be avoided, all the external and internal angles should be rounded, and there must be no square corners or inaccessible recesses that cannot be properly cleaned, and provision made for flushing the troughs from end to end, for which purpose two stand pipes fixed in such positions that, as well as the troughs, every part of the cow house can be cleaned and flushed by a hose. As regards the stall divisions, the employment of timber should be avoided. In the writer's opinion, no better material can be used than galvanised iron, and tubular fittings are to be recommended, as their construction is non-absorbent, light and air is unobstructed, comfort is afforded to the cow, the original cost is small, the upkeep infinitesimal, and all the important points from a hygienic standpoint are gained. An excellent yoke for securing the animals is made in galvanised tubing, being parallel in form, and circular at top and bottom, hinged below and opening at the top to admit the head, and closed with a self-catching latch above. The yoke is extremely simple and cleanly, and gives comfort to the cow in all positions, whether standing up or lying down. No little difference of opinion exists as to the provision for watering, some farmers preferring to water the cows in the yard outside, but when inside watering is favoured, automatic drinking troughs in combination with the feeding trough are to be recommended, by which an ample supply of water of a temperature equal to that within the cow house is obtained, and food and dirt falling in the water is prevented.

(To be continued.)

### THE JEWS AS BUILDERS.\*

By Professor ARCHIBALD C. DICKIE, M.A., F.S.A.

It appears to be true that, although some early Hebrew buildings may have been of a nature justifying the title of architecture, exploration has revealed evidence of little more than mere crude building as a general characteristic. At the same time, fragments of early works show a degree of skill in mason-craft, which forces one to consider present evidence as inconclusive.

In Palestine the work of the excavator has been confined to the sites west of the Jordan, and out of the many cities enumerated in the Old Testament only about twelve have been excavated. These are Jerusalem, Gezer, Beth Shemesh, Lachish, Tell Sandahannah, Tell es-Safi, and Tell Zakariah by the Palestine Exploration Fund, and Samaria, Megiddo, Jericho, and Taanach by German and American exploration societies. In these sites complete investigation was impossible for various reasons. Plans of the boundary fortifications have, however, been recovered, and it is now possible to judge of their modest proportions. An area of anything from six to twenty-five acres would appear to have been commonly considered sufficient to contain an important city. Leaving out of the question, for the moment, the extended Jerusalem of Solomon and his successors, it is within these closely packed areas that we must search. At the outset, they stand self-convicted of a condition precluding the development of building, and this conclusion is strengthened by an examination within the walls.

For some years I have tried to gather together available evidence in the hope of finding some continuation of a type such as one may reasonably assume was expressed by the buildings of Solomon, our understanding of which is based upon descriptions. Up to the present, however, only negative results are on record.

It is necessary to commence our examination with the earliest evidence of occupation by the races preceding the Hebrew invasion, for the reason that housing conditions then established appear to have continued with only slight alterations up to Hellenistic times. Professor Macalister's work at Gezer\* shows that the Neolithic races of Palestine had established themselves in extensive cave communities of considerable strength, as early as 3000 B.C. These races chose sites on rocky hills wherein they burrowed through the soft limestone. In some cases their abodes were extended in the manner of rabbit burrows, having many compartments connected by passages and provided with various entrances and exits. Entrances were usually in the form of manholes cut through the roofs, with two or three rudely cut steps, rising from the floor of each cave so entered. Some regard for internal convenience is shown in the various niches recessed in the walls, used, in all probability, as cupboards or wardrobes. Small triangular lamp niches, much smoked and set about 3 or 4 feet high, explain the system of artificial lighting. Except in those compartments having manholes, the caves were altogether dark. Evidence of an attempt at something akin to the "Grand Manner" in cave architecture is seen in one of the systems explored at Beit Jibrin.† Here is a large rectangular hall measuring 47 feet by 18 feet, having recessed chambers from its sides and approached by a regular rock-cut staircase; included in the system are several rounded chambers. The only evidence of decoration to be found in these caves are the graffiti scratched on the walls, but as it is impossible to tell when these were cut, too much importance need not be put upon them. Special caves were set aside for burial purposes.

The geographical distribution of Palestine is such that limited tribal boundaries became inevitable,‡ and the first real building effort is displayed in the earth ramparts, cased in stone, by which the cave cities were protected against neighbouring enemies. (See Q.S., 1903, pp. 113-116.) Semitic invaders drove out the Troglydites and established themselves on the vacated sites c. 2500 B.C. Although the caves appear to have remained in use, they were overlaid by buildings, and the low fortifications were replaced by high stone walls. One may therefore assume that the site then yielded accommodation both above and below the surface. The remains of buildings of this and later periods show them to have been of the rudest possible character, laid out without system and packed together haphazard, having regard to nothing indicating a knowledge of even the most primitive town planning. The huts themselves were small and irregular in shape, showing no geometrical knowledge. Narrow approach-alleys, unpaved and bounded by plain mud-plastered walls, meandered through the maze to the various entrances; in fact, plans of that period are so confused and fragmentary that the existence of alleys can only be assumed. Fortifications appear to have occupied the chief attention of the new tenants, and they, in conjunction with the more important water engineering works, provide the strongest evidence of engineering ability: These cities, then, such as they were, became the scenes of the triumphs of the invading Hebrews, and the spies, who told of high and strong walls "fenced up to heaven," were reporting on 6 to 25 acre forts, within which the refugees from the outer villages joined their chief for protection. The rivalry and jealousy of the marauding clans of Canaan, to which the high walls bear ample testimony, were the Hebrews' strongest allies in their piecemeal conquests.

\* "The Excavation of Gezer." R. A. S. Macalister.

† "Excavations in Palestine." Bliss and Macalister.

‡ "Historical Geography." G. A. Smith.

\* A Paper read at a meeting of the Manchester Egyptian and Oriental Society, and printed in the Journal of the Society.

The Semitic races (which for simplicity's sake may be grouped under one name, "Canaanite") now established, made little or no progress in the arts of building and, except in the way of adding towers and otherwise strengthening the fortifications, they appear to have had little opportunity to improve.

After the occupation of Palestine by the Hebrews, the conditions of cities varied only slightly. Fortifications were from time to time strengthened. Successive layers of superimposed foundations found in every mound excavated, and frequently accompanied by regular layers of ashes, quantities of charred grain, &c., tell of demolition and hurried rebuilding in confirmation of written history. Some little improvement is seen in house-planning. The single hut, which had previously more often been extended by the addition of rooms to its sides, gradually disappears, and more methodical plans appear, consisting of outer open court, living chamber entering off the court and inner chambers, covered by flat roofs with protecting parapets (according to the Law). Walls were built of mud bricks or stone; in the case of the latter the stones were usually rough blocks laid in mud; squared stones appear rarely, and as if from the hand of imported workmen. Internally the walls were plastered, and small fragments of painted plaster discovered show some attempts at colour decoration. Roofs were formed of rough joists covered with brushwood and mud. Unusually wide spans were carried on beams, with intermediate supports of wooden posts in stone base sockets introduced to prevent the post sinking into the clay floor.

An interesting if gruesome custom practised by the Canaanites, and continued apparently for some time by the Hebrews, was that of human sacrifice (see *Q.S.*, 1904, p. 17; 1908, p. 206) in the foundation dedication rites of their buildings, to which there is allusion in the Old Testament. Bodies buried diagonally, under the return angle of the foundations have been found, indicating an importance put upon stability, scarcely borne out by the insufficiency of the building itself. It was, however, just that want of constructional skill which made it possible for the winter rains, penetrating the heart of loosely built and badly founded walls, to effect a complete collapse. In this connection, reference may be made to a custom in vogue to-day, among native builders, viz., that of building the walls of a house and leaving them uncovered for a winter, in order to put them to the water test. The parallel is made more complete by an examination of the present system of building in Palestine, which is equally loose but rendered slightly more homogeneous by the substitution of lime mortar for the mud invariably used by the ancient builders. A position also reserved for dedication rites was underneath the threshold, and in later Hebrew times the rite was observed by the more humane burial of a lamp between two bowls as symbolic of sacrifice. In these and in many other references there is evidence of a demand for durability, akin to what has been ever present in all great national building achievements. The decorated granite of Egypt was a consummation of the same ideal, but the Jew never reached the stage of even making the most of his own soft limestone. Distrailed and distressed, in his building infancy, he sought refuge in sacrifice from calamity to which his experience lent many parallels. "What man is there that hath built a new house and hath not dedicated it? Let him return lest he die in battle" (*Deut.* xx. 5).

Solomon's imported work at Jerusalem 400 or 500 years after the Conquest, was a great advance. In spite of much promise, however, it appears to have had little after-effect, and there are little or no signs of improvement in the buildings of other cities with which his reign is credited. At Lachish, Professor Flinders Petrie discovered a few fragments of the Solomonic period, showing the Egyptian lintel cavetto and bead mouldings used over doorways in conjunction with jamb slab decoration in the form of low relief pilasters with rudely carved volutes. The latter discovery is one of particular interest, illustrating, as it does, the stonecutters' primitive attempt

to imitate a feature in which the volute occurs as early as c. 1000 B.C. The scantiness of such fragments, however, point to chance importation. The lintel was undoubtedly borrowed from Egypt, and the volute may possibly be traced to some remote Ionic prototype.

The main features considered in the "lay out" of a normal Jewish city were: the Stronghold or inner fort, the High Place, the Broad Place by the Gate, and the Market Place. The Stronghold had the obvious and most important function of a last defence. The High Place was prominent in both Canaanite and Jewish cities and consisted of an open area in which a row of monoliths was placed, accompanied by an altar, laver, and cave for refuse (see *Q.S.*, 1903, p. 25). All about the area and around the bases of the standing stones at Gezer, bodies of sacrificed infants in earthenware jars were buried in Canaanite and early Jewish periods. It is the alignment of standing stones,\* however, which is chiefly interesting in our present quest. These sacred boulders express a condition of building barbarity which could not have existed contemporaneously with architecture as an expression of the higher building sense; they were borrowed and remained, for the time being, as monuments of Jewish inability to erect a more fitting offering.

Hellenistic influence brought with it the first real improvement in building and planning. The toleration of Alexander the Great marks a new period of semi-national building, and a greater development is shown in the 200 or 300 years following his conquest, than during the whole preceding period of over 1,000 years. Although this term of comparative prosperity was broken by the viciousness of Antiochus Epiphanes and the consequent revolt of the Jews, it was renewed in even greater degree during their independence under the princely family of the Maccabees. Fashions in Greek manners and architecture became popular. Regard for formality and order in the lay-out of city-plans is seen, streets became wider, and buildings show the temper of fitness to their sites and purpose. (See *Q.S.*, 1900, p. 326.) The main features of Greek architecture were borrowed and incorporated with such strong local feeling that there seemed hopes of a national type as the eventual result of Greek tutoring. Before this could be accomplished, however, Rome stepped in with overpowering influence.

The painted Tombs of Marissa,<sup>†</sup> discovered by Drs. Peters and Thiersch, show a type of architecture of this Græco-Syrian character in which the parapet is incorporated in the façade, over triangular-headed openings flanked by quasi-Greek details of a peculiarly local character. The remains of the Temple of Onias at Leontopolis, excavated by Dr. Flinders Petrie, appear to show the same illogical use of classic entablature in conjunction with parapets of the same wavy outline as those illustrated at Marissa. The stern Greek treatment of the eaves was not observed. The parapet, which was legally demanded (*Deut.* xxii. 8), maintained its place as the crowning feature, and below it the cornice appears only as an intermediate horizontal band. If it were possible, it would be interesting to discuss the battle between the architecture of the local flat roof and parapet here illustrated, and that of the sloping roof and cornice of alien Greece. In spite of the architectural impetus of the latter, everything points to the retention of the parapet as an all-important detail which, in the natural course of development, must have quickly ousted the classic eave and gable, and so have established a definite constructional form arising out of the flat-roof, to which beauty could be partnered.

Such a paper as this would not be complete without further reference to the Temples of Jerusalem. The descriptions of Solomon's temple and courts are so full that many restorations have been attempted. As, however, no single portion of the remains of any of the temples has been yet identified, it will be well, in the light of recent discoveries of contemporary buildings elsewhere, to confine oneself only to generalities. The

\* There are eight stones standing in a line of about 100 feet, the largest stone being 10 feet 6 inches high.

† "The Painted Tombs at Marissa." Peters and Thiersch.

temple proper was comparatively small, covering an area of about 90 by 30 feet, and having a height to the ceiling of 45 feet, the roof presumably being flat. Externally, the building seems to have been plain, and it would appear that the "coping" indicates merely the existence of a parapet as a crowning feature, enclosing a flat roof. Masonry was smooth-dressed and close-jointed, and in this respect it differs from most of the masonry of the period elsewhere. Stones occurring in the walls of Jerusalem which may, with some certainty, be assigned to this period, show similar advanced masonry. The two external columns had richly decorated "chapiters." Internally, cedar boarding was largely used as wall covering, and "there was no stone seen," woodwork was, in parts, richly carved, and gilding was freely applied in the decoration. Undoubtedly the Temple of Solomon, with its surrounding courts, cloisters, and gates, platforms and steps, was by far the greatest building of the Jews. Its character was Phœnician, since it was the work of Phœnicians, but there speculation ends. The enthusiasm shown at the completion of such an offering to God can well be imagined. The Jews themselves knew no building but their own rude huts and fortifications, so that Solomon was forced to borrow Hiram's skilled craftsmen. That the group of buildings was laid out with considerable architectural skill is evident, although it must also be borne in mind that, by comparison, it loomed large and rich in the eyes of the Jews, who saw in it the centre of national aspirations under divine favour. After the captivity, the temple and courts which had been destroyed by Nebuchadnezzar were rebuilt by Zerubabel, c. 520 B.C. The work was not up to the standard of the original buildings (Hag. ii. 3), and this is not surprising when we compare the social and political conditions of the Jews.

A great portion of Herod's extended temple area walls still remains. It is the power and dignity of these fortifications, with their huge internal vaulted substructure transforming the irregular hill into a great level platform, which tell something of the story. Such a setting warranted a fitting jewel, and it is unlikely that here the finest period of imperial Rome should have failed. This great effort was of course entirely alien and dominating, generously applied to Jewish service, but only lent for an imperial purpose. In no other light can it be considered in Jewish history.

Comparison is here strongly marked. Great building is begotten of great expansion, but the greatness of the Jews lay in their heroic but unsuccessful struggles for the preservation of national integrity. They had forsaken their tents for the unlovely walled shelters of the Canaanites, and within these they strove against internal sedition and external enemies. No better instance of this can be quoted than that of Simon of Gerasa and John of Gischala, the leader of the Zealots, who, having common cause against Titus, found opportunity, in the breathing spaces of Roman attacks, to wage war against each other; this at a time when the sufferings of a protracted siege, in defence of their most sacred possession, had all but reached their limit.

The references to building greatness in the Old Testament indicate a pride out of all scale with actuality. Ideals were not lacking. "Behold, I will lay thy stones with fair colours and thy foundations with sapphires . . . and I will make thy windows with agates and thy gates of carbuncles and thy borders of pleasant stones." So wrote Isaiah with the true imagination of a great builder. The desire to build in strength and beauty is abundantly evident. Had history been different, Solomon's great example might have laid the foundation of a national style of architecture; the disruption which followed his death, however, left his reign the only period in which development on these lines was possible. The arts of peace died in the seed, and the greatest works of the Jews are to be found in their water-supplies and fortifications. These show engineering power of no mean standard, forced out of them by the sheer necessity for self-preservation.

## THE TRUE SCIENCE OF CHROMATICS.\*

By W. F. FRAETAS.

THE purpose of this paper is to show in a simple and practical manner the remarkable relationship existing between colour, musical tone, geometrical form, line, and angle. The instinct which impels man to seek for harmony and correlation in the truths of science and art necessarily develops a higher instinct to recognise and perceive the foundational relationship existing between one field of phenomena and another. When we study the various fundamentals connected with each branch of science and art we soon discover that every specific truth is connected in some way or another with every other truth in the universe. It will also be found that every set of truths is charged with its own particular series of vital consequences, suggestions, and analogies, and when we carefully study the various properties and qualities of colour, tone, and geometrical form we find that all these things cannot possibly be kept separate and apart by an artificial boundary—they are so connected and associated that they insistently point to the unity of nature, art and science.

The true science of chromatics is based upon the law of proportion. We all know that proportion is a great principle in nature—it is mathematical, and when correctly perceived and rightly interpreted by man, through point, line, and angle, it makes geometry the natural gateway to a thorough understanding of a true science of colour; also opens up a new vista leading directly into the realms of high art.

A large number of artists to-day are chary of any effort to combine science and art. They view with suspicion any new discovery and are extremely cautious of accepting a science of pure chromatic harmony, in relation to painting, decoration, and design. This attitude of mind naturally accounts for the partial knowledge and inadequate teaching of colour, which gives rise to a large percentage of crude work which somewhat characterises all branches of art in our times.

The artist, the sculptor, the architect depends far too much on his own personal feelings, ideas, or genius, without first considering whether a deeper and a more positive knowledge exists, that will broaden his ideas and cause his feelings to rise to loftier heights, and give a freer scope to his genius; and also enable him to give a wider and a larger expression to his field of work. Thus I would like to remind some that "vital truth is always beneficent, even if at first sight it may have an unwelcome or an adverse aspect." All far-reaching discoveries are opposed and even ridiculed before general acceptance and adoption.

An old English writer once said: "The supreme business of the philosopher is not to create, but only to adjust things too abstract to be distinguished by the ordinary mind."

Many attempts have been made in the past to arrive at the exact relation of form, tone, and colour. Scientists, artists, musicians, and writers have theorised upon this important subject, but very few have arrived at anything definite in connection with this matter. The principles of light and colour are fundamental in the universe, and because this is so it is possible to develop a science or a system of chromatic harmony similar to that of harmony of musical sounds, having corresponding mental and emotional effects.

I will show you this afternoon how the marvels of point, line, and angle of geometrical radiation will actually determine the harmonic unity, order, and sequence of perfect colour groups and tone scales; also how line and angle will lead us to a fuller understanding of the laws of beauty, and the charms of nature, and apply such knowledge to the development of art in its various forms.

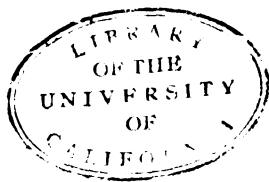
\* A Paper read before the Cape Institute of Architects and the Students of the South African School of Art.

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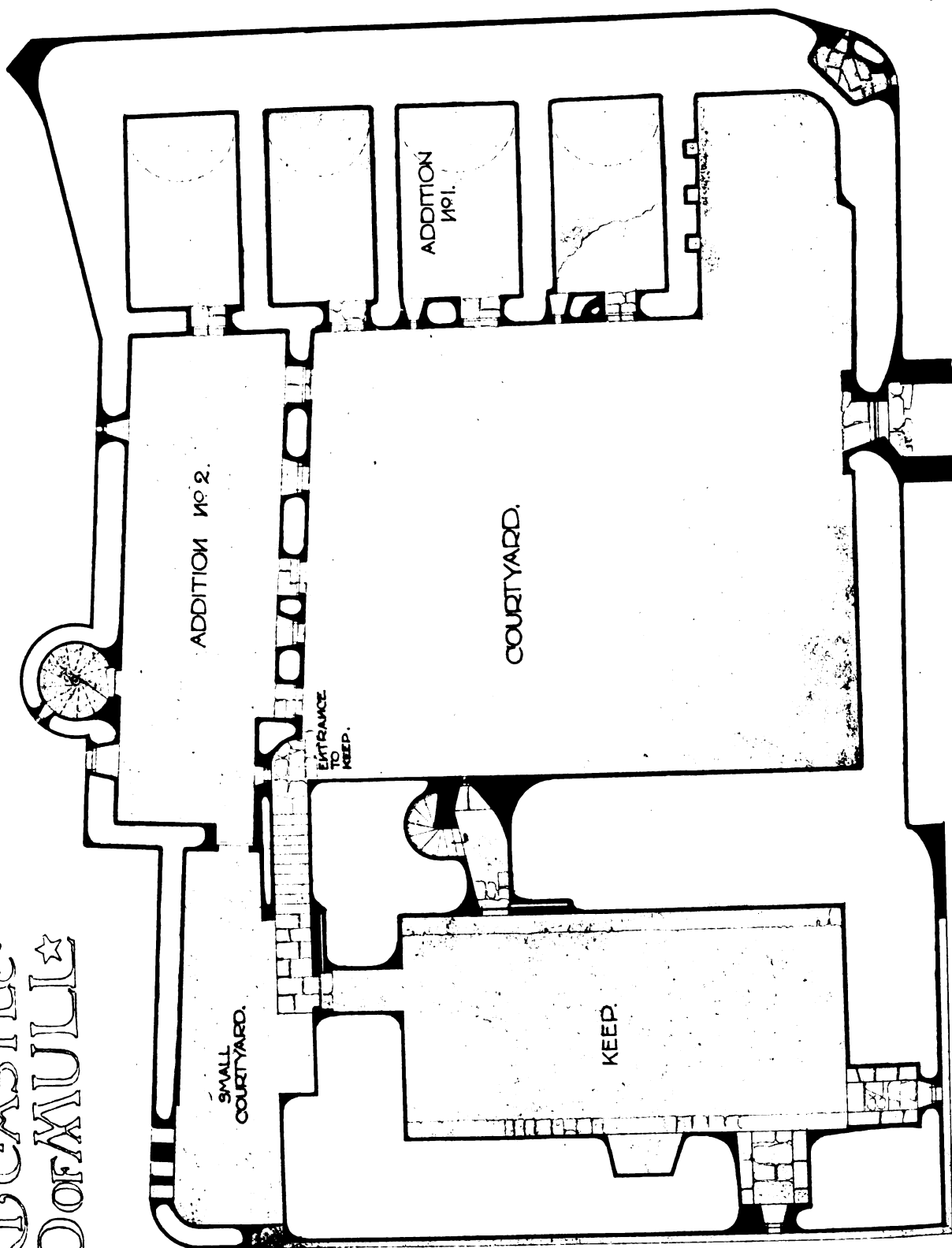
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The Architect, Sept. 1st 1916.

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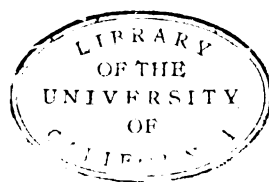


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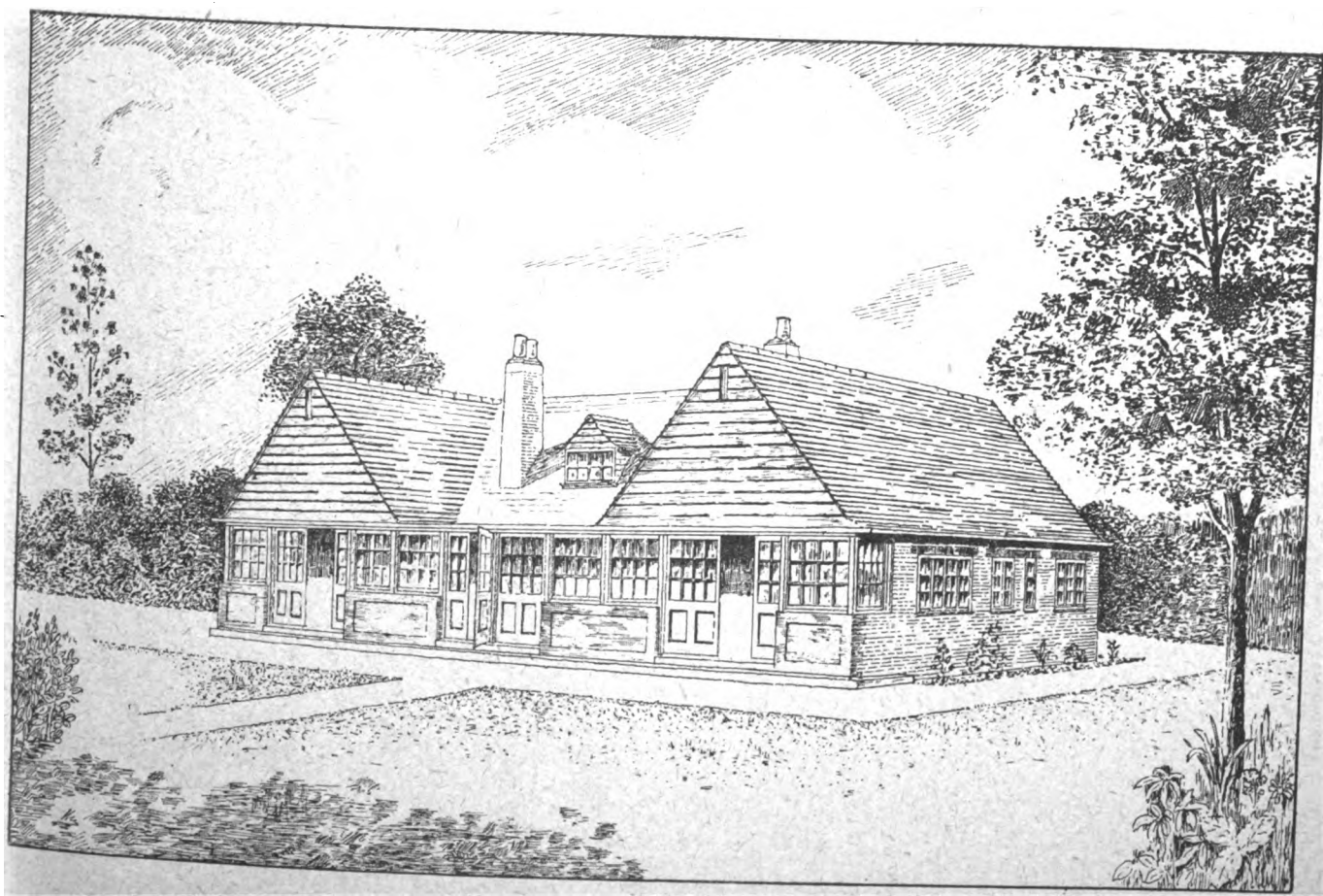
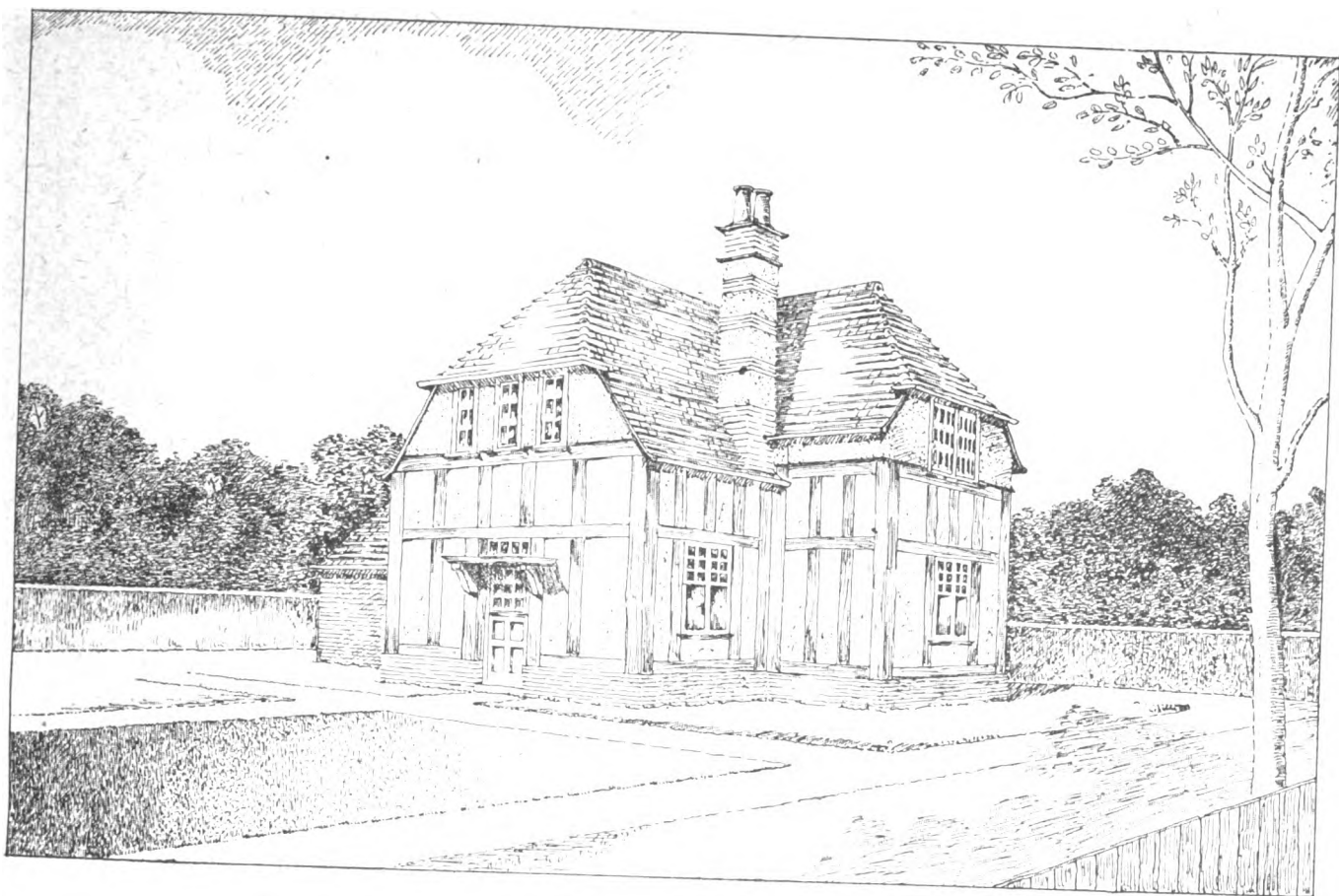












[Spottiswoode, Ballantyne & Co., Ltd., New St. Sq. E.C.

COUNTRY HOUSES.  
FARROW, Architects.

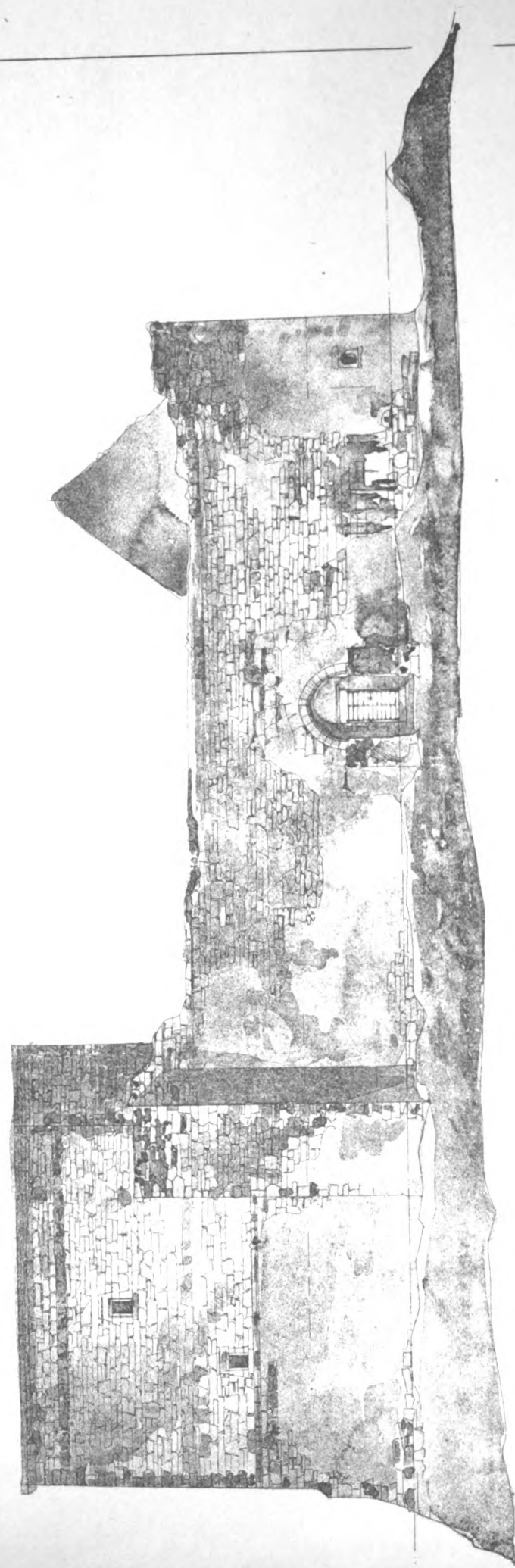






The Architect, Sept 1st 1916.

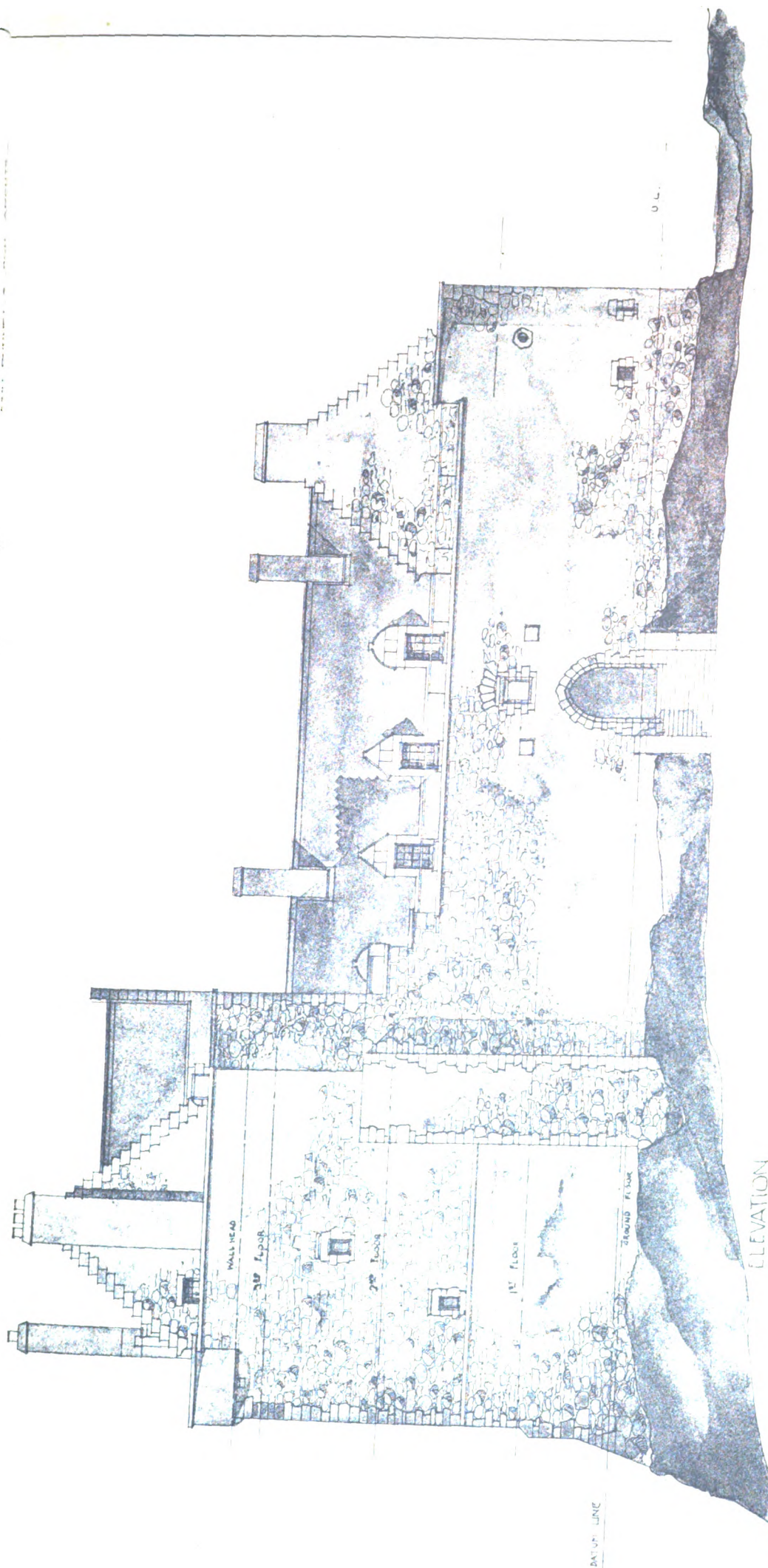
# DOWARD CASTLE. ISLAND OF MULL.



ELEVATION  
FROM THE SOUTH.

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ELEVATION  
FROM THE SOUTH



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It is intended to show first the natural development of a true twelvefold perfect scale from the three primitive colours—red, yellow, and blue; and then show from this plan the possibility of creating thousands of harmonies, chords, groups, families, and scales of colour, unthought of before, as well as the absolute correspondence intimately existing between the true science of chromatics and the basis of pure music; also how admirably these twin arts are related and how they reflect the perfections of each.

The system of colour law—which I have discovered, systematised, and recently completed—will give the world a new science of colour, a new art, a new music, a new idea of the harmony of geometrical forms, a new method of mixing and blending of colours. This system will enable the scientist, philosopher, psychologist, poet, artist, architect, musician, and teacher to employ principles and methods which will teach the mixing and the application of colour in a more practical and efficient way than any other system that is in vogue in art centres, schools, and colleges to-day.

Thus in the future, when the colour sense of humanity is more highly developed and perfected through correct correlation and true comprehension of tone and colour, we may expect that the organ and piano will have all their keys made in colours corresponding to their respective notes in music; the notes of printed music will also be in their proper colours. This will unquestionably be the true method of colour-music teaching in our schools, because it will mean that we shall have adopted a perfectly natural sensic language, having positive as well as definite mental and emotional properties, possessing also the power of producing pure sensations and feelings in the human consciousness.

Moreover these sensations and feelings will be instantly understood and appreciated, and not obscured as now by the difficult system of notes in the scales of music such as we have in use to-day. In fact, the whole system of music can be simplified and taught with greater ease and perfection, thus the new era art teacher of sound-colour or colour-music will prove that it is far easier to teach the two arts together than to impart instruction in music and colour separately.

Students and scholars can be interested in a way unthought of hitherto. It will enable them to acquire useful and accurate knowledge in a shorter space of time than by the present method and we must not lose sight of the tremendous psychological effect of this new mode and method of teaching.

Psychologists know there is a significant relationship existing between the eye and ear, and they are always active selecting and transmitting visual impressions and images and aural messages to the inner consciousness. When these two primary human senses are carefully trained so as to act independently as well as mutually, the psychological effect will indeed be greater. By teaching colour, musical tone, and geometrical form together children of tender years will not only be able to understand certain definite rhythmic principles but will certainly be able to apply them readily.

At present, notwithstanding the presumably high development of teaching colour and tone in our schools, we have no true or perfect harmonic system, hence the educational world cannot possibly accomplish what they are aiming at here and there through Froebel, Montessori, and other kindergarten systems. This new system of colour law reveals the structure of harmony and shows the absolute relation of a pure colour scale to a true chromatic musical scale. This correlation is not only psychologically true, artistically correct, but mathematically certain and scientifically perfect. "In every art or science we expect accuracy according to the nature of the subject matter and the end which it is proposed to attain."

#### *The Prime Necessity for a Colour Law.*

Some people are repelled by the word "law." Law of colour, they say, is unthinkable. The universality of

law and order in the universe to all thinking minds is unquestionable. Natural law cannot be superseded or repealed anywhere, especially in the great domain of light and colour phenomena. It must be apparent that the revelations of natural law can certainly be relied upon—nothing is capricious and uncertain in the vast cosmos; the key to progress and the approximate perfection of our arts can only be attained through conformity to law and obedience to revealed order. Law is everywhere, and without law we shall not be able to unravel the interlaced and intermingled properties of colour and tone or their complex relations and blended unions.

Why are so many mistakes made in painting, and glaring errors in the application of colour? Why are artists sometimes at a loss to apply unhesitatingly the correct colours in their pictures? Why does it take some artists from one to two hours to mix their colours? and, why are some pictures deficient in a true and perfect ensemble of colour?

The answer to these and many other questions is simple. They are all working in the dark and without knowledge of the true law of colour. Law is a vital, living, and intelligent force in the universe directed by a Universal Will and an Infinite Intelligence: hence persistent and reliable, without variableness, and therefore serviceable. Under its sovereignty the artist must work and fully comply with its mandates. Law is indispensable; it is man's great temporal guide and saviour. Law, whether in colour, tone, geometrical form, or in any other sphere or domain, is always consistent and harmonious. Law reveals the various factors at work modifying, counteracting, arranging, adjusting, centralising, and harmonising; but never will law allow opposition unless balanced by a series of perfect harmonies, because one truth cannot possibly be in antagonism to another truth. Obedience to law brings knowledge. Knowledge produces harmony. Harmony is not only the forerunner of perfection, but it introduces prosperity, joy, and peace.

The objection that may be raised that the introduction of a system of painting according to a scientific law of chromatics would necessarily result in mechanical productions is easily refuted by the fact that millions of variations of hue, tint, and shades of colour are permissible under this new system and all such variations, perfect as they are in order and agreement, would yet never be equally assimilated or brought into full use by any two individual artists. The perfection, then, of art consists in the development and employment of a comprehensive law which would meet every imaginable requirement and be adapted to any and every purpose. The proper systemisation of laws and principles of colour phenomena will enable man to understand, mix, apply, and demonstrate colour and tone readily and without much effort in any sphere of art activity.

#### *The Vital Importance of a True Knowledge of Colour.*

The importance of colour cannot be fully estimated. The value of a trained colour sense is of the greatest consequence, and no one should lightly esteem its cultivation. John Ruskin, in his "Stones of Venice," says: "The fact is, we none of us enough appreciate the nobleness and sacredness of colour. Nothing is more common than to hear it spoken of as a subordinate beauty, nay, even as the mere source of sensual pleasure. . . ." Ruskin goes on to say: "Of all God's gifts to the sight of man, colour is the holiest, the most divine, the most solemn. . . ." And "the more faithful and earnest the religion of the painter the more pure and prevalent is the system of his colour." Also "it will be found that where colour becomes a primal intention with a painter, otherwise mean or sensual, it instantly elevates him, and becomes the one sacred and saving element in his work." There is a spiritual or transcendental side to colour that one cannot very well speak of in an open lecture, but I agree with Ruskin on the power and influence of colour and that nature herself has set a seal upon its glorious and unspeakable mysteries awaiting a fuller unfolding of





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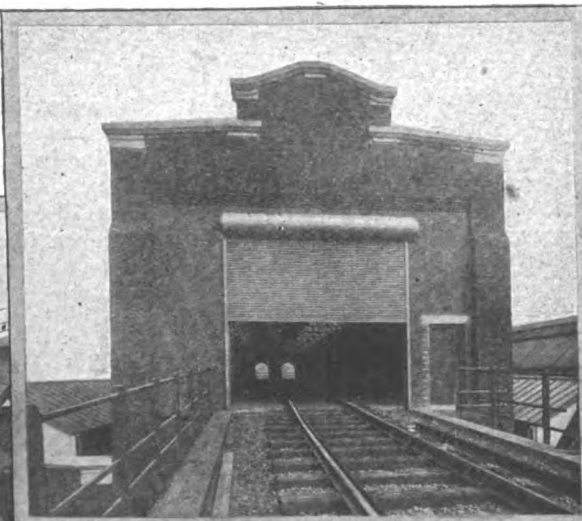
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the soul of man. The prophet said: "Where there is no vision the people perish," and one of our great South African poets gave us his message on the open vision thus:—

Land of light, that pales life's beaming,  
Tints more fair than taught to men,  
Peerless splendour, joy past dreaming,  
Sweet beyond all mortal ken!

—George Kett.

The development, then, of the colour sense in man is more than a duty. It should be done along the lines of accuracy and perfection so as to give anyone the rare ability to recognise, distinguish, and name colours, tints, shades, and hues correctly; also be able to match any of these without difficulty and to combine all those that are harmonious, agreeable, and beautiful. The use of colour is not limited to artists only, nor is the sublime gift intended for the few favoured ones. In women the colour sense is more highly developed than in man—the comfort, pleasure, and delight of a refined and beautiful home is dependent upon pure colour, taste, and sense. The value of a true colour knowledge is needed in the vast field of industry, manufacture, and commerce. We know how essential this precious gift is to the soft goods merchant in the selection of dress materials, fabrics, and trimmings; also its uses in the making of rugs, carpets, and curtains. The saleswoman needs it to be able to match ribbons, silks, wools, and cottons. Weavers and dyers require a perfect knowledge of colour and colour blending in the manufacture of various kinds of goods. Without a true and educated colour sense the modern house decorator will persist in putting on your walls inharmonious colours in distemper, paint, and wall papers, which will affect your health and upset your nervous system, because every colour has a definite and specific influence. The Russians understand the secret of colour in the decoration of their homes. A noted decorator in New York City unwisely put a pure blue paper on the walls of a first-class restaurant. The owner, a well-known and good caterer and a very successful man at his business, was more than surprised to find very few people patronising his establishment, notwithstanding the fact that he had his place in the best part of the city and a good orchestra with efficient service. Finally, in despair, he called in another decorator, who had a better colour sense than the former, and suggested orange, a warm, instead of blue, a cold colour. Blues and purples belong to the Church. Orange is a warm, vigorous, active, diffusive, vital nature colour denoting movement, gaiety, life, and pleasure, and therefore more suited to hotels and restaurants. It is a well-known fact that the store-keeper who decorates his store inside and outside attractively and artistically will do more business than his sluggish competitor.

Colour in signwriting, poster work, and window-dressing is becoming more and more an art. The psychology and influence of colour strikes deeper than one imagines. In America, business men are now more careful in the furnishing of their offices, realising that better business will be done if their offices are decorated harmoniously than when done in glaring, ugly, and unattractive colours. Even large board and consulting rooms are now furnished and arranged so as to enable directors to concentrate their minds successfully.

Students in colleges and schools in America are having their rooms done in such tones that are cheery, restful, and optimistic. The Panama Exposition has been made a thing of beauty and joy, because the authorities determined that it should have a genuine and real colour scheme, instead of a conglomeration of miss-fit effects—glaring white buildings, dazzling light, muddled architecture, and ill-assorted colours. The Government of the United States employed a small army of architects, artists, sculptors, mural painters, decorators, landscape gardeners, and electricians, under the able guidance of Jules Guerin, director of colour and decorations of the Panama Exposition, who was determined to make the

whole affair beautiful, artistic, and harmonious, within as well as without, and fully representative of a grand national achievement.

Nature revels and rejoices in colour. Colour is the life of art. The reverent artist beholding the beauty and glory of colour in land, sea, and sky, if he learns the secret message of the Divine Artist, becomes a high priest in the sacred temple of art. In order to stimulate, develop, and perfect the colour sense in man we must begin with the children. The child is the sign-symbol of our future greatness in this land. Every child born at this time comes upon earth with a holy mission and needs the highest and most perfect training and unfoldment possible—hence, notwithstanding the many so-called up-to-date systems in vogue in our schools for teaching colour, they are only stepping-stones to higher things if our educational authorities will only take a little precious time to look into this colour system for kindergarten and other scholastic purposes. I am sure that a new method of teaching can be developed here that will make clear and unfold the mysteries of colour, tone, space, time, and form consciousness of our children in a perfectly natural way—in fact, such a method may become world-wide in its application.

#### *The Geometrical Basis of the True Science of Chromatics.*

I will now give you a brief description of this new system of colour law or a general outline of the true science of chromatics based on point, line, and angle.

We know that every crystal is a geometrical growth. Nature everywhere shows that "shape is only a matter of angles and that the identity of shape depends upon equality of angle." Professor Tyndall, in one of his famous lectures on Light, referring to crystallisation, said: "Throughout the process you notice one feature which is perfectly unalterable, and that is angular magnitude—angular magnitude is always rigidly preserved. In the process of crystallisation nature first reveals herself as a builder. Where do her operations stop? Does she continue by the play of the same forces to form the vegetable and afterwards the animal? Whatever the answer to these questions may be, trust me," he goes on to say, "that the notions of coming generations regarding this mysterious thing which some have called brute matter will be very different from that of generations past."

We know that there are three primary geometrical forms: the circle, the triangle, and the square. Michael Angelo shows us the mystery of the circle in his picture, "Love balancing the Wheel of Fortune," and those gifted with mystical insight perceive the message of this great artist. The circle is the greatest sign-symbol in existence; it represents the law of equilibrium and adjustment, and is also the basis of vital symmetry. It is the universal constant of nature, the only means of planning, regulating, and balancing the law of opposites or action and repose or life and form. It reveals the basis of unity and duality. With the circle it is possible to understand the principles of colour attraction, repulsion, co-operation, combination, and association. The perfect circle suggests the marvels of infinite extension and the order of axial, orbital, and spiral motions of colour. It is, then, our basis and sure foundation for the production of a true colour scale. The triangle is the basis of all design parts and perfections, signifying balance of similar and equal forces, properties, and qualities. The square is the great foundational and prime form of nature, denoting tension of competitive and opposing energies on perfectly right, straight, and direct lines, and stands for right-angled equilibrium. With these three prime geometric forms and their interactions we have a basis for the development of all other centres, lines, and angles in geometry for the comprehension of colour massing, grouping, or scaling; also the means of understanding the principle of the constructional spirit of beauty. This constructional spirit de-



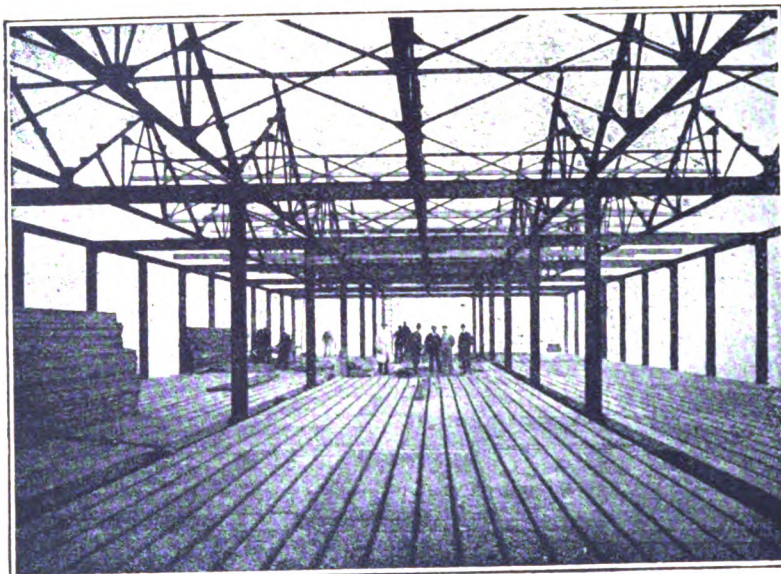
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(To be continued.)



[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### Manx Antiquities.

SIR,—Some few lustrums ago I delivered lectures on the above subject before the Liverpool Architectural Society and the Liverpool Manx Society, and it occurred to me that antiquarian visitors there (Ellan Vannin) might find a reference to them useful in the gist of same, given below:—

“Mr. McGovern at the outset said he intended to deal with, first, stone circles and sepulchral mounds; second, cabbals, keeills, treens, and mortuary primitive churches; and third, Runic remains. The lecturer, referring to the Cregneese circle, near Rushen, said these archaic remains have now been exclusively proved to come under the character of mausoleums, and not as so long supposed, Druidical temples. The cromleac also has been ascertained not to be a Druid's altar, erected for the purpose of human sacrifices: its sepulchral character had been vindicated within the last few years by the use of the spade. In connection with sepulchral mounds in Ellan Vannin he recommended its antiquaries to compare the examples in their island with those recently discovered at Toun, Blacklion, Co. Cavan, and those near Bray, Dublin. Anent cabbals, keeills, treens, and mortuary primitive churches, Mr. McGovern traced their gradual transition, the origin of which he attributed to Ireland. An exact description of a cabbal is given in the Book of Armagh, and is the outcome of the Hiberno-Celtic occupation of Eubonia, before the Scandinavian rule. In dealing with the third section—Runic remains—the lecturer spoke of the Runic crosses in Kirk Braddon churchyard, and pointed out the difference between the pure Irish ornament and the Scandinavian. The former is essentially geometric, and the other zoomorphic. Irish ornament was to be seen in the splendid codices of the Book of Kells, St. Cuthbert's Gospels or St. Chad's, all of which date about the beginning of the eighth century. For those who cannot inspect these valuable tomes, they should see without delay Gilbert's 'Facsimiles of Irish Manuscripts,' to be had in all our chief libraries.”—Yours, &c.,

J. H. MCGOVERN, Licentiate R.I.B.A.

Liverpool: August 21, 1916.

#### The Censor's Little Joke.

SIR,—In the recent report of the bombing of Lichtervelde Station, the little map of the district round Bruges just did not get in Lichtervelde; and poor old Thourout had the first “u” dropped out. My Belgian friends here think the Censor has been too clever by half, and that he decided it would possibly help the enemy by showing the position of the junction and where Thourout is.—Yours, &c.,

“NON IGNOTUS.”

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#### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### BUCKINGHAMSHIRE.

*Amersham*.—Laboratory, Chartridge, for Mr. N. H. Freeman.

House: additions. Mr. W. C. Mathews, builder.

*Chalfont St. Peter's*.—House. Mr. Ryder, builder, Gold Hill.

*Chesham Bois*.—“Ye Olde Cottage”: additions. Mr. W. H. Harrison, F.R.I.B.A., architect, 66 Victoria Street, London, S.W.

House. Messrs. Rust & Ratcliffe, builders, 1 Higham Road.

*Little Kimble*.—Proposed Baptist Chapel.

##### KENT.

*Herne Bay*.—House, Central Avenue. Mr. R. Messenger, A.R.I.B.A., architect, Town Hall Chambers.

Pair of villas, Selsea Avenue, for Mr. R. N. Cattle.

*Wrotham*.—House, Maidstone Road, Borough Green, for Mrs. C. R. Smith.

##### LANCASHIRE.

*Atherton*.—Proposed working-class dwellings.

*Cadishead*.—Wesleyan Chapel: Sunday school.

##### NORTHUMBERLAND.

*Bedlington*.—Property, Bank Top: proposed outbuildings and other improvements for Messrs. Ridley, Cutter & Firth.

##### SURREY.

*Barnes*.—House, Ferry Road, for Mr. A. Harvey.

##### SUSSEX.

*Littlehampton*.—Hospital: proposed children's ward.

##### WARWICKSHIRE.

*Birmingham*.—St. Patrick's presbytery.

*Hillmorton*.—House: additions. Mr. C. W. Perkins, builder.

##### YORKSHIRE.

*Barby*.—Council school: enlargement for additional two hundred and fifty places.

*Hilderthorpe*.—Proposed Primitive Methodist Church.

#### SCOTLAND.

*Aberdeen*.—Proposed Catholic school, Torry.

*Glasgow*.—Proposed Y.M.C.A. buildings, Lyric Theatre buildings site, Sauchiehall and Renfield Streets.

*Larne*.—House, Milbrae: alterations for Mr. T. Carson.


On the declaration of peace it has been decided to build a much needed vestry to the Parish Church at Horley, Sussex. The estimated cost is £500.

THE new school erected at Blairhill, Dysart, by Kirkcaldy and Dysart School Board, was formally opened on August 25. The building, which is of white and red stone, with slated roof, is a substantial and stately structure. There is accommodation for 600 scholars in twelve class-rooms, and the building has been planned to permit of further extension if required. There is also an industrial room, large central hall for drilling purposes, separate cloak-rooms for boys and girls, medical inspection room, headmaster's room, and separate staff rooms for male and female teachers. The drinking fountains, both inside and outside, are on the latest hygienic principle, no drinking cups being required.

THE issue of the Argentina “Boletin Oficial” of June 12 publishes a decree approving modifications introduced into the project for the construction of a building at Buenos Aires destined to be used as the headquarters of the Argentine Post and Telegraph Administration. The total approved estimate of cost of the undertaking is 8,726,628 pesos currency (about £763,600), of which sum 800,000 pesos (about £70,000) is to be expended during the current year.



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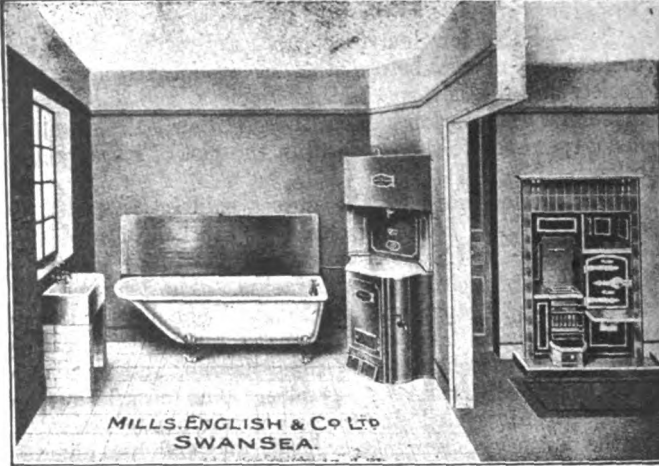
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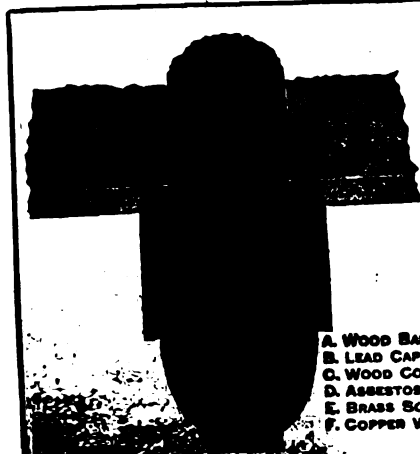
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# THE ARCHITECT

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## EDUCATION AND PRACTICE IN THE FUTURE.

THAT things will not be the same after the war as they were before is now in course of recognition as applicable to all departments of national activity, and it cannot be expected that architecture will fail to conform with the general revolution, inasmuch as it always responds to every change in the conditions of the society to whose requirements it ministers and whose characteristics of mode and manners it reflects.

Preparation for the new order and conditions must, it is recognised, affect the methods of education of those who are to carry on the new national life, and amongst educationalists there is a strong tendency to exalt the importance of science in preference to what in the past has been designated the humanities. We may freely admit that adequate and thorough training in science has, on the whole, been insufficiently provided in the curriculum of our British public and secondary schools, and we may expect that in the future those who enter the architectural profession will, in common with those intended for other occupations, receive more education in scientific subjects than in the past.

But whilst it is unquestionable that the architect of to-day is more and more compelled to admit and provide for in his buildings the application of science in manifold directions, there remains the fact that architecture is, first and foremost, an art; that its primary function is the creation of the beautiful. Beauty in architecture does not exclude but, on the contrary, is inseparable from full provision for the maximum of usefulness in every building. It connotes not only this provision but the expression of full fitness for its purpose in every part of every structure. It is in its highest achievement not the decoration of utilitarianism with a veneer of applied ornament, but the æsthetic satisfaction of every necessity in appropriate, logical, and pleasing form.

Therefore it is to be hoped that any extension of scientific training that may be introduced into the school education of our future architects may not exclude such studies as tend to the development of the imagination and the acquisition of facility of expression. We will not at the present time discuss the question whether for these mental qualities the best education is to be found in the study of the Greek and Latin languages or through some other media.

The demand for an increased recognition of scientific training as a necessary part, and even as a predominant part, of a schoolboy's curriculum is undoubtedly due to a feeling that in modern industrial conditions the so-called practical man is insufficiently equipped for to-day's struggle for existence, let alone for supremacy. The so-called practical man is one who has received at most a good secondary education, and then, without crowning it with detailed scientific study, has gone out into the world to tackle industry, and in the course of his business has built up a "practical" acquaintance with it, without knowing the basis on which his practice rests. Hence, he relies upon precedent and experience of the past, and

fails to see opportunities for new departure, or to give a favourable hearing for suggestions of improvement. Above all, he is unable to comprehend the value of research or to appreciate the importance of patience for its operations to mature and its fruit to ripen. He must have immediate results and demands a practical proof of its utility in the shape of "profits within a year."

On the other hand, the pure devotee of science may have mastered all the science of an industry without opportunities of practising it, and thereby gaining experience in its practical details. He is accordingly apt to miss the difference between a laboratory experiment and profitable production under commercial conditions. Scientific education, to be of its highest value, must therefore be directed to effecting in one and the same individual a combination of the practical and scientific man.

Whilst it is practically certain that the curriculum of our public schools will in the future embrace a larger proportion of scientific subjects, there is also every probability that a more extended study of foreign languages will also be included, for one of our national deficiencies in the field of world commerce is the practical restriction of the majority of our countrymen to the use of their own language only. Whilst it will be no disadvantage to the architectural pupil of the future to receive a more thorough scientific training, it is rather to an increased acquaintance with the literature and thought of our contemporaries resulting from a real instead of perfunctory study of modern languages that we may look for a widened outlook, a quickened imagination, a more facile expression in the mental equipment of the future architect in embryo.

In the practice of architecture, also, there are likely to be considerable changes, for we cannot escape from our environment and its influence. Industrial conditions will be changed, commercial methods will be modified. There will, in all probability, be an intensification of speed and hustle, an extension of mutual co-operation in lieu of disconnected, individual effort. These must reflect upon the practice of architecture.

A retrospect of the changes through which architectural practice has passed within historical epochs is not without interest, as indicative of constant change and progress. In the Middle Ages, despite all controversial attempts to assert the contrary, there can be little doubt that the architect was one of the operative workers, the master-mason. He had graduated through the stages of apprentice and craftsman before he attained the position of leader and director of his fellows. There are some amongst us to-day who would see in a revision to this system the salvation of the art and craft of architecture. But we cannot put back the hands of the clock or revert to the conditions of the past. When the progress of building reduced the supremacy of the stoneworker to an equality with other craftsmen, the master-mason no longer possessed the requisite authority to direct and control the operations of workers in other material, and there arose the necessity for an architect, who should be competent to co-ordinate the activities of independent trades. The master-mason was no longer supreme, but one of a group of masters, the master-carpenter, the master-smith, and so on.

Then arose the practice in which the architect made arrangements and contracts, gave instructions and directions to each master-craftsman, separately and independently; a practice that still exists in Scotland and the north of England, but which in the south has in its turn been superseded in the march of progress by the introduction of the contractor, or master-builder, who assumed the responsibility for the proper conduct of all the trades and eliminated the friction and jealousy too often consequent upon the side-by-side employment of independent master-craftsmen.

Now the multiplication of distinct industries and of the so-called specialists has introduced a new factor, the sub-contractor, whose precise relationship to the employer, the architect, and the contractor is, at this very moment, a question whose satisfactory answer is still to seek. We are inclined to think that the solution is a reversion in principle to the North British system, even, it may be, with the development of the personality common on the Continent, though extremely rare if not unknown in England, the architect-contractor.

Just as the master-builder came into existence to ensure the co-operation of the various building trades with the reduction of trouble to the architect-designer, so now that the master-builder as a contractor fails to achieve the smooth working and co-operation of the army of industrials, who are necessary to the completion of a modern building, it would appear that he must be superseded by some other system of control. The master-builder absolutely controlled, as their employer, every bricklayer, mason, carpenter, and labourer on the building, and could therefore accept responsibility for their work.

The contractor is in an impossible position when some of the tradesmen are his direct employees and others are in a position of practical independence. A contractor can take the responsibility for the work of specialists only when these are part of his staff or directly under his control, and the architect, in this case, in order to exercise adequate direction and supervision of all the varied forms of mechanical engineering that find place in a modern building must be able to draw up a detailed specification, and see it carried out, for every one of them with as much exactitude as he now does for the bricklayer, the joiner, and the other purely building trades. This is one solution—to give the contractor as absolute a control over the specialists as he possesses over the operatives in the ordinary building trades with a correspondingly complete knowledge of detail and vigilance of inspection on the part of the architect.

Is this latter condition feasible? The alternative is for the architect to make his contract with the employer and his sub-contracts with the master-builder or master-craftsmen and the specialists, in whose capability and honesty he has sufficient confidence to accept responsibility for their work without minutely detailed knowledge and supervision of all their operations. One other alternative there is, and it is being adopted by some firms who are prepared to meet the employer on the basis of supplying the design as well as the material and workmanship, the architect as well as the electrician being their employee or sub-contractor. But here already we have the contractor-architect. Surely it would be better for the dignity of the profession, as well as for the advancement of the art of architecture, that we should instead have the architect-contractor, with the architect in his proper position of supremacy.

### NOTES AND COMMENTS.

DESPITE the war and the consequent very heavy depletion of the ranks of their students, some of the educational institutions of the country which make special provision for architects and others concerned in the building trades are giving evidence of their intention to carry on during the forthcoming session by the issue of their prospectus.

The School of Architecture (including the Department of Town Planning) of the University of London at University College offers the following courses:—I. The B.A. Degree Course (Honours in Architecture) of the University. II. The Certificate Course in Architecture. III. The Seniors' Design Class. IV. Certificate Course in Town Planning. V. Diploma Course in Town Planning and Civic Architecture. VI. Diploma Course in Town Planning and Civic Engineering.

The courses include: (1) A thorough grounding in the details and theory of Building Construction, and in the nature, properties, and working of materials, by means of

(a) lectures, (b) studio work, (c) demonstrations and manual work in any craft approved by the University (held at the Trades' Technical School, Great Titchfield Street, by kind permission of the Carpenters' Company), (d) visits to workshops, and to buildings in course of construction. (2) Lectures and demonstrations (specially arranged for architectural students) in the Engineering Laboratory, dealing with stresses and strains, strength of materials, including practical testing of the same, and steel and iron construction. (3) The "Orders," with exercises on them. (4) Lectures on the History of Architectural Development, in which the evolution of Architectural Design, especially as regards plan, construction, and general principles, and what occasioned evolution, are traced by analysis of, and reference to, acknowledged masterpieces. Visits are also paid to old buildings. (5) Architectural Design, mainly dealing with everyday problems. Degree and Certificate Students, however, if sufficiently advanced, can work in the Seniors' Design Class, and drawings made there can be submitted as part of their work for the Degree or Certificate. (6) Measuring and drawing out fine examples of old work. (7) Lectures and demonstrations in Sanitary Science, Heating, Ventilation, &c. (8) Drawing from architectural casts, and from the Antique or Life in the Slade School. (9) Modelling.

The Department of Town Planning (under the direction of Professor S. D. Adshad, M.A.) has been established in order to provide systematic courses of training for architects, engineers, and surveyors who desire to acquire expert knowledge in the laying out of towns.

The passing of the Town Planning Act of 1909 directed public attention to the importance of town planning. In preparing their schemes under the Act, local authorities have called into their service architects, engineers, and surveyors who by their personal efforts have acquired some knowledge in the laying out of towns. Experience has, however, shown that town planning demands for its practice specialised training. Advisory and permanent positions for the trained student are likely to be created.

Architectural and engineering students who have already had their general training in architecture or engineering as the case may be are advised to proceed to a course in town planning. The course will include lectures and studio work. The lectures and courses will include town planning, civic architecture and landscape design, town furnishing, planting, municipal engineering, and municipal law.

The staff of the School of Architecture includes Professor F. M. Simpson, Professor R. Elsey Smith, Assistant Professor Leslie Wilkinson, and Mr. Arthur Stratton, F.S.A., as Lecturer.

The Department of Architecture of the University of Sheffield, under the direction as Lecturer of Mr. W. S. Purchon, M.A., A.R.I.B.A., was founded at the desire of the Sheffield, South Yorkshire and District Society of Architects and Surveyors, which is associated with the Council and the Senate of the University in its management. The department provides:—(1) A Course forming part of the Ordinary Degree of Bachelor of Arts. (2) A Course leading to the Degree of Bachelor of Arts with Honours in Architecture. This consists of a three years' Day Course and two years' part time Course. (3) A Certificate Course consisting of a two years' Day Course and a third year part time Course. (4) A Diploma Course. This is a two years' part time course following the Certificate Course. (5) Special Evening Courses in Architectural Drawing. (6) Courses in Surveying. The Day Courses give a systematic course of training for students wishing to become architects, to be taken by them before entering an architect's office, though not necessarily before they are articulated. The part time Courses (consisting principally of evening lectures) form a continuous course of study for students during their pupillage, and also for qualified assistants.





BUSINESS PREMISES IN FERMOY, IRELAND.—MR. ARTHUR HILL, B.E., F.R.I.B.A., M.R.I.A.

These premises were rebuilt after a fire for Messrs. Quinlan & Punch, Mr. Thomas O'Mahony being the builder and Mr. Arthur Hill, B.E., F.R.I.B.A., M.R.I.A., the architect.

The Glasgow School of Architecture makes a special point of concurrent office work and school teaching. The Glasgow Institute of Architects have been consulted regarding the co-relation of office apprenticeship with the course of study provided by the School of Architecture, and the Council of the Institute have expressed their concurrence in, and issued to the members a recommendation in favour of, the alternative schemes of study outlined below, under which attendance at the School of

Architecture is combined with the serving of an office apprenticeship.

The various courses of study provided by the Glasgow School of Architecture are given in both the Royal Technical College and the School of Art. They offer a comprehensive architectural education, and are the necessary complement to the practical training of the pupil or apprentice in an architect's office. A sound general education, such as that provided in a good secondary school, is assumed.



The complete course of study leads to a diploma. The diploma course is strongly recommended to students really desirous of qualifying as architects. It is the normal course for day students.

A restricted portion of the same course, called the certificate course, although of lesser requirement and arranged for students who cannot give the time required for the diploma course, will yet provide a fairly sufficient education. The whole certificate course qualifies for the senior certificate; the Junior Division of this course for a junior certificate.

The diploma course may be taken in one of the following alternatives, provided the student has previously obtained the preliminary qualification. These are placed in order of preference:—

(1) Full day classes for, say, four years, with attendance in an office during the vacations. The professional pupillage should be reduced to a minimum, in consideration of the time spent in the school.

(2) Day and evening classes, with office attendance in any approved combination, three examples of which follow:—

(a) One session full day in the school, three sessions in the office with evening classes, two sessions full day in the school.

(b) Two sessions half day in the school (first year morning, second year afternoon), half day in the office, three sessions in the office with evening classes, two sessions full day in the school.

(c) One session full day in the school, four sessions in the office with evening classes, school completed with at least one session in full day classes.

In every case, day classes must be taken amounting to the equivalent of at least two sessions.

The certificate course, if taken entirely in evening classes, will require (a) one or two years in continuation classes to qualify for admission to the school, (b) five sessions of evening attendance for the senior certificate, or three sessions for the junior certificate. But it is recommended that a part of the course be taken in day classes. Preferably the studies should begin with one session of full day or at least of morning classes at the school, the full course of study being thus reduced by at least two years.

All students are expected to take either the diploma course or the certificate course; under exceptional circumstances they may be permitted to take some of the classes only.

The Camberwell School of Arts and Crafts, in addition to day and evening classes in various artistic crafts, has evening classes in architectural design, drawing and history, and in building construction, as well as in some of the building crafts in which artistic work is possible.

At the monthly meeting of the Carnegie Dunfermline Trust, held last week, the Trustees had under consideration a report by Mr. Macgregor Chalmers with regard to the excavations in the Abbey. The report is in the following terms: "I have now completed, so far as that is possible, the excavations in the centre aisle of the nave of the Abbey, and I have been successful in uncovering the walls of the church erected by King Malcolm III. and his Queen, St. Margaret, about the year 1072. This early church is on the site indicated by me in an article published in the month of March, and it is now proved that the width of St. Margaret's Church influenced the design of the nave built by King David I. But the church is longer and more complex in plan than I anticipated from the study of St. Margaret's Church in Iona. Instead of being a simple chamber with an apse at the east end, the church consists of an apse, choir, nave, and a great tower at the west end. This plan anticipated by some sixty years the plans of the churches at Dalmeny, Inverkeithing, and Leuchars." Mr. Macgregor Chalmers now proposes, with regard to the completion of the work, that, instead of filling in the earth removed

from the old foundations, a floor of pavement laid on steel beams be substituted, the outline of the older church being indicated on the floor by means of slightly different coloured paving stones. By the substitution of a floor of this nature the excavated foundations will be rendered available to all students of architecture and the public generally.

In the current number of the Nuneaton Parish Church Magazine there are some interesting notes on the ancient fabric of St. Nicholas Church as follows:—

The keeping in repair of such an ancient and priceless fabric as that of our parish church is far too serious a charge to be defrayed through the churchwardens' ordinary "church expenses" account. From time to time special work must inevitably be taken in hand, such as the replacing of pinnacles and the rebuilding of buttresses and the removal of perished stone.

The history of the church can be traced from the reign of Henry I. It was enlarged in Henry III.'s reign, and owes its "Perpendicular" work to the time of Henry VII. or VIII., when very considerable alterations were made. The lengthening of the chancel was done in Queen Victoria's reign, and our new vestry built in that of our present King. The church thus links the present time with a past of more than 800 years, and is a treasure which not only none would willingly see neglected, but which all would wish to share in preserving.

We can understand that the amour propre of the Hawarden Rural District Council is a little ruffled because buildings for the occupation of employees of the Ministry of Munitions are being erected without compliance with their by-laws and without their approval of the plans, but more important local authorities have by this time recognised that Government buildings are outside the restriction of by-laws. It is, however, a reflection on the Local Government Board and the by-laws they sanction that another Government department should treat these by-laws with contempt. Of course, we all know that the official regulations are too stringent, and it is a good argument for their modification that the Government does not itself stick to them. We wonder what will be the position of these erring dwellings when the Government, after the war, no longer needs them and disposes of them to private individuals.

Sir H. C. Munro, Secretary of the Local Government Board, has addressed the following circular to local authorities:—

I am directed by the President of the Local Government Board to state that the Government have under consideration certain questions which are likely to arise in connection with the demand for capital and the distribution of labour and employment at the close of the war.

It may perhaps be thought by some that it is premature to consider these questions in any detail at the moment. This is doubtless the case in relation to certain aspects of the question. Mr. Long feels, however, that due regard must be had to the magnitude of the questions involved, to the part which all classes of local authorities must take in furnishing information and otherwise assisting in the solution of those questions, and to the depleted staffs with which these local authorities have now to perform their duties.

Bearing all these points in mind, Mr. Long thinks that there may be distinct advantage in beginning the collection of some data which are necessary for the elementary consideration of the problems, and more particularly of such data as are likely to vary least with the progress of time.

He has in contemplation the establishment of a Register of Work available and likely to be undertaken at the conclusion of the war, and it appears to him that, while by no means excluding other sources of information, this can to a large extent best be compiled from information which local authorities may possess or be able to obtain both as regards works to be undertaken by them and also as regards other works to be undertaken in their areas.

Members and officers of local authorities have unique opportunities of obtaining accurate information on these points, and while Mr. Long would very much regret to add anything unnecessary to their labours at the present time, he feels sure that the advantage of starting betimes to obtain the material for such a Register as he proposes will be generally recognised. Consequently he appeals without hesitation to both members and officers of local authorities to take all steps within their power to obtain the material necessary to enable them to give as completely as possible the information asked for in the enclosed Forms A and B.

Mr. Long realises that it is impossible to forecast the position at the end of the war as regards either the supply of material or capital or the prices at which these can be obtained. These matters will largely affect the amount of work which will be undertaken at the end of the war, and may have the effect of materially restricting this work. At the same time the release of transport at present engaged on war work should have some effect in reducing the cost of imported materials, and there seems every reason to anticipate that plenty of labour will be available for almost every class of work.

So far as works to be undertaken by local authorities are concerned, these bodies will no doubt make such forecast of the future in their districts at the end of the war as their knowledge admits of, and will probably be able to say with some degree of accuracy what works they will be able or obliged to undertake when that time comes. Many of these works are of an urgent character, and have only been postponed in deference to the express desire of the Government to conserve all financial resources for the purposes of the war.

As regards works to be undertaken by private enterprise the case is more difficult, and Mr. Long recognises that the information obtainable cannot be regarded as absolutely reliable in all circumstances.

The inclusion of particular works in the Register cannot in any way bind the undertakers to proceed with those works, but it is hoped to secure, by means of the Register, a general idea of the character and extent of the works which may be undertaken at the close of the war and the capital and labour which they would absorb.

At the same time it is not desirable to include in the Forms particulars of works the putting in hand of which, upon the conclusion of the war, is for any reason problematical, but if, on the other hand, the works will be put in hand in the event of certain conditions being fulfilled, the works should be included in the particulars given and the conditions subject to which they will be undertaken should be indicated.

Form A is intended to show the suggestions of each local authority as to works which might be undertaken by them in their various capacities on the conclusion of the war, and it is desired that it should be filled up as soon as practicable by the following authorities: County Councils, Councils of all Boroughs and of Urban and Rural Districts, and any Joint Board consisting of representatives of any such Councils, Boards of Guardians of Poor-Law Unions, the Metropolitan Asylums Board, and other Poor-Law authorities having power to carry out works involving capital expenditure.

Form B is intended to show any definite information obtained by a local authority as to works contemplated in the area within their jurisdiction by bodies or persons other than the local authority, and it is desired that this form should be filled up by Councils of all Boroughs and of Urban and Rural Districts. This Form is therefore sent only to those authorities.

If, as is possible, the information asked for in Form A can be furnished before that asked for in Form B, Mr. Long requests that Form A may be forwarded to this office without waiting for the completion of Form B, which may be forwarded subsequently as soon as it can be completed.

In Form A local authorities are asked to furnish information as to works which are needed or which might be undertaken by them on the conclusion of the war under the following headings: (1) Short description of the works; (2) degree of urgency; (3) are the local authority prepared to undertake the works, subject to any necessary capital being available; (4) approximate amount of expenditure involved; (5) approximate period over which the works would extend; (6) number of men who would be employed; (7) authority for carrying out the works and for borrowing, whether obtained or applied for.

Form B asks for information respecting works con-

templated in the area within the jurisdiction of the local authority by bodies or persons other than local authorities, so far as the local authority can obtain definite information, on the following points: (1) Short description of the works; (2) name and address of the body or person proposing to undertake the works; (3) approximate period over which the works would extend; (4) number of men who would be employed. This therefore would embrace all building operations contemplated by private individuals.

## ILLUSTRATIONS.

### BRONZE MEMORIAL CLOCK.

THIS work was exhibited in the Sculpture Gallery of this year's Royal Academy Exhibition, and has been recently erected in the Green Room Club in memory of the late F. Mouillot, Esq., Mr. Ferdinand V. Blundstone being the sculptor.

### "TWIST-TAIL" GARDEN WATER TAP.

THE model of this charming piece of sculpture, by Mr. Alfred Turner, was also exhibited in this year's Royal Academy.

### DOWART CASTLE, ISLAND OF MULL.

WE continue the series of illustrations of this interesting work by Messrs. John Burnet & Son, which we commenced last week, when we gave a full description.

## THE FOUNTAIN-HEAD OF EUROPEAN CIVILISATION.\*

*Et quasi cursores vitæ lampada tradunt.*

WHEN I was asked on behalf of the Council of the British Association to occupy the responsible post of President at the Meeting in this great city—the third that has taken place here—I was certainly taken by surprise; the more so as my own subject of research seemed somewhat removed from what may be described as the central interests of your body. The turn of Archaeology, however, I was told, had come round again on the rota of the sciences represented; nor could I be indifferent to the fact that the last Presidential Address on this theme had been delivered by my father at the Toronto Meeting of 1897.

Still, it was not till after considerable hesitation that I accepted the honour. Engaged as I have been through a series of years in the work of excavation in Crete—a work which involved not only the quarrying but the building up of wholly new materials and has entailed the endeavour to classify the successive phases of a long, continuous story—absorbed and fascinated by my own investigations—I am oppressed with the consciousness of having been less able to keep pace with the progress of fellow explorers in other departments or to do sufficient justice to their results. I will not dwell, indeed, on those disabilities that result to myself from present calls and the grave preoccupations of the hour, that to a greater or less extent must affect us all.

But Archaeology—the research of ancient civilisations—when the very foundations of our own are threatened by the New Barbarism! The investigation of the ruins of the Past—at a time when Hell seems to have been let loose to strew our Continent with havoc beyond the dreams of Attila! “The Science of the Spade”—at a moment when that Science confronts us at every hour with another and a sterner significance! The very suggestion of such a subject of discourse might seem replete with cruel irony.

\* Presidential Address by Sir Arthur Evans, D.Litt., LL.D., P.S.A., F.R.S., Extraordinary Professor of Prehistoric Archaeology, Oxford; Correspondant de l'Institut de France, &c., at the Newcastle-on-Tyne, 1916, Meeting of the British Association for the Advancement of Science.

And yet, especially as regards the prehistoric side of Archaeology, something may be said for a theme which, in the midst of Armageddon, draws our minds from present anxieties to that still, passionless domain of the Past which lies behind the limits even of historic controversies. The Science of Antiquity as there seen in its purest form depends, indeed, on evidence and rests on principles indistinguishable from those of the sister Science of Geology. Its methods are stratigraphic. As in that case the successive deposits and their characteristic contents—often of the most fragmentary kind—enable the geologist to reconstruct the fauna and flora, the climate and physical conditions, of the past ages of the world, and to follow out their gradual transitions or dislocations, so it is with the archaeologist in dealing with unwritten history.

In recent years—not to speak of the revelations of Late Quaternary culture on which I shall presently have occasion to dwell—in Egypt, in Babylonia, in Ancient Persia, in the Central Asian deserts, or, coming nearer home, in the Aegean lands, the patient exploration of early sites, in many cases of huge stratified mounds, the unearthing of buried buildings, the opening of tombs, and the research of minor relics, has reconstituted the successive stages of whole fabrics of former civilisation, the very existence of which was formerly unsuspected. Even in later periods, Archaeology, as a dispassionate witness, has been continually checking, supplementing, and illustrating written history. It has called back to our upper air, as with a magician's wand, shapes and conditions that seemed to have been irrevocably lost in the night of Time.

Thus evoked, moreover, the Past is often seen to hold a mirror to the Future—correcting wrong impressions—the result of some temporary revolution in the whirligig of Time—by the more permanent standard of abiding conditions, and affording in the solid evidence of past well-being the “substance of things hoped for.” Nowhere, indeed, has this been more in evidence than in that vexed region between the Danube and the Adriatic, to-day the home of the Serbian race, to the antiquarian exploration of which many of the earlier years of my own life were devoted.

What visions, indeed, do those investigations not recall! Imperial cities, once the seats of wide administration and of prolific mints, sunk to neglected villages, vestiges of great engineering works, bridges, aqueducts, or here a main line of ancient highway hardly traceable even as a track across the wilderness! Or, again, the signs of medieval revival above the Roman ruins—remains of once populous mining centres scattered along the lone hillside, the shells of stately churches with the effigies, bullet-starred now, of royal founders, once champions of Christendom against the Paynim—nay, the actual relics of great rulers, lawgivers, national heroes, still secreted in half-ruined monastic retreats!

*Sunt lacrimae rerum et mentem mortalia tangunt:* Even the archaeologist incurs more human debts, and the evocation of the Past carries with it living responsibilities!

It will be found, moreover, that such investigations have at times a very practical bearing on future developments. In connection with the traces of Roman occupation I have recently, indeed, had occasion to point out\* that the section of the great Roman road that connected the Valleys of the Po and Save across the lowest pass of the Julians, and forms part of the main avenue of communication between the Western and the Eastern provinces of the Empire, has only to be restored in railway shape to link together a system of not less value to ourselves and our Allies. For we should thus secure, via the Simplon and Northern Italy, a new and shorter Overland Route to the East, in friendly occupation throughout, which is to-day diverted by unnatural conditions past Vienna and Budapest. At a time when

Europe is parcelled out by less cosmopolitan interests the evidence of antiquity here restores the true geographical perspective.

Whole provinces of ancient history would lie beyond our ken—often through the mere loss of the works of classical authors—were it not for the results of archaeological research. At other times again it has redressed the balance where certain aspects of the Ancient World have been brought into unequal prominence, it may be, by mere accidents of literary style. Even if we take the Greek World, generally so rich in its literary sources, how comparatively little should we know of its brilliant civilisation as illustrated by the great civic foundations of Magna Graecia and Sicily if we had to depend on its written sources alone. But the noble monuments of those regions, the results of excavation, the magnificent coinage—a sum of evidence illustrative in turn of public and private life, of art and religion, of politics and of economic conditions—have gone far to supply the lacuna.

Look, too, at the history of the Roman Empire—how defective and misleading in many departments are the literary records! It has been by methodical researches into evidence such as the above—notably in the epigraphic field—that the most trustworthy results have been worked out.

Take the case of Roman Britain. Had the lost books of Ammianus relating to Britain been preserved we might have had, in his rugged style, some partial sketch of the Province as it existed in the age of its most complete Romanisation. As it is, so far as historians are concerned, we are left in almost complete darkness. Here, again, it is through archaeological research that light has penetrated, and thanks to the thoroughness and persistence of our own investigators, town sites such as Silchester in Roman Britain have been more completely uncovered than those of any other Province.\* Nor has any part of Britain supplied more important contributions in this field than the region of the Roman Wall, that great liminary work between the Solway and the mouth of the Tyne that once marked the Northernmost European barrier of civilised dominion.

Speaking here, on the site of Hadrian's bridge-station that formed its Eastern key, it would be impossible for me not to pay a passing tribute, however inadequate, to the continuous work of exploration and research carried out by the Society of Antiquaries of Newcastle, now for over a hundred years in existence, worthily seconded by its sister Society on the Cumbrian side, and of which the volumes of the respective “Proceedings and Transactions,” “*Archæologia Aeliana*,” and last but not least the “*Lapidarium Septentrionale*,” are abiding records. The basis of methodical study was here the Survey of the Wall carried out, together with that of its main military approach, the Watling Street, by MacLauchlan, under the auspices of Algernon, fourth Duke of Northumberland. And who, however lightly touching on such a theme, can overlook the services of the late Dr. Collingwood Bruce, the Grand Old Man, not only of the Wall itself, but of all pertaining to border antiquities, distinguished as an investigator for his scholarship and learning, whose lifelong devotion to his subject and contagious enthusiasm made the Roman Wall, as it had never been before, a household word?

New points of view have arisen, a stricter method and a greater subdivision of labour have become imperative in this as in other departments of research. We must, therefore, rejoice that local explorers have more and more availed themselves of the co-operation, and welcomed the guidance of those equipped with comparative knowledge drawn from other spheres. The British Vallum, it is now realised, must be looked at with perpetual reference to other frontier lines, such as the Germanic or the Rhaetian lines; local remains of every kind have to be correlated with similar discoveries throughout the length and breadth of the Roman Empire.

This attitude in the investigation of the remains of

\* “The Adriatic Slavs and the Overland Route to Constantinople.” “*Geographical Journal*,” 1916, p. 241 *seqq.*

\* See Haverfield: “Roman Britain in 1913,” p. 86.

Roman Britain—the promotion of which owes so much to the energy and experience of Professor Haverfield—has in recent years conducted excavation to specially valuable results. The work at Corbridge, the ancient Corstopitum, began in 1906 and continued down to the autumn of 1914, has already uncovered throughout a great part of its area the largest urban centre—civil as well as military in character—on the line of the Wall, and the principal store-base of its stations. Here, together with well-built granaries, workshops, and barracks, and such records of civic life as are supplied by sculptured stones and inscriptions, and the double discovery of hoards of gold coins, has come to light a spacious and massively constructed stone building, apparently a military store-house, worthy to rank beside the bridge-piers of the North Tyne, among the most imposing monuments of Roman Britain. There is much here, indeed, to carry our thoughts far beyond our insular limits. On this, as on so many other sites along the Wall, the inscriptions and reliefs take us very far afield. We mark the grave-stone of a man of Palmyra, an altar of the Tyrian Hercules—its Phœnician Baal—a dedication to a pantheistic goddess of Syrian religion and the rayed effigy of the Persian Mithra. So, too, in the neighbourhood of Newcastle itself, as elsewhere on the Wall, there was found an altar of Jupiter Dolichenus, the old Anatolian God of the Double Axe, the male form of the divinity once worshipped in the prehistoric Labyrinth of Crete. Nowhere are we more struck than in this remote extremity of the Empire with the heterogeneous religious elements, often drawn from its far Eastern borders, that before the days of the final advent of Christianity Roman dominion had been instrumental in diffusing. The Orontes may be said to have flowed into the Tyne as well as the Tiber.

I have no pretension to follow up the various affluents merged in the later course of Greco-Roman civilisation, as illustrated by these and similar discoveries throughout the Roman World. My own recent researches have been particularly concerned with the much more ancient cultural stage—that of prehistoric Crete—which leads up to the Greco-Roman, and which might seem to present the problem of origins at any rate in a less complex shape. The marvellous Minoan civilisation that has there come to light shows that Crete of four thousand years ago must unquestionably be regarded as the birth-place of our European civilisation in its higher form.

But are we, even then, appreciably nearer to the fountain-head?

A new and far more remote vista has opened out in recent years, and it is not too much to say that a wholly new standpoint has been gained from which to survey the early history of the human race. The investigations of a brilliant band of prehistoric archaeologists, with the aid of representatives of the sister sciences of geology and palæontology, have brought together such a mass of striking materials as to place the evolution of human art and appliances in the last Quaternary Period on a far higher level than had even been suspected previously. Following in the footsteps of Lartet and after him Rivière and Piette, Professors Cartailhac, Capitan, and Boule, the Abbé Breuil, Dr. Obermeier and their fellow investigators have revolutionised our knowledge of a phase of human culture which goes so far back beyond the limits of any continuous story, that it may well be said to belong to an older World.

To the engraved and sculptured works of Man in the "Reindeer Period" we have now to add not only such new specialities as are exemplified by the moulded clay figures of life-size bisons in the Tuc d'Audoubert Cave, or the similar high reliefs of a procession of six horses cut on the overhanging limestone brow of Cap Blanc, but whole galleries of painted designs on the walls of caverns and rock shelters.

So astonishing was this last discovery, made first by the Spanish investigator Señor de Sautuola—or rather his little daughter—as long ago as 1878, that it was not till after it had been corroborated by repeated finds on the French side of the Pyrenees—not, indeed, till the begin-

ning of the present century—that the Palæolithic Age of these rock paintings was generally recognised. In their most developed stage, as illustrated by the bulk of the figures in the Cave of Altamira itself, and in those of Marsoulas in the Haute Garonne, and of Font de Gaume in the Dordogne, these primeval frescoes display not only a consummate mastery of natural design but an extraordinary technical resource. Apart from the charcoal used in certain outlines, the chief colouring matter was red yellow ochre, mortars and palettes for the preparation of which have come to light. In single animals the tints are varied from black to dark and ruddy brown or brilliant orange, and so, by fine gradations, to paler nuances, obtained by scraping and washing. Outlines and details are brought out by white incised lines, and the artists avail themselves with great skill of the reliefs afforded by convexities of the rock surface. But the greatest marvel of all is that such polychrome masterpieces as the bisons, standing and couchant, or with limbs huddled together, of the Altamira Cave, were executed on the ceilings of inner vaults and galleries where the light of day has never penetrated. Nowhere is there any trace of smoke, and it is clear that great progress in the art of artificial illumination had already been made. We now know that stone lamps, decorated in one case with the engraved head of an ibex, were already in existence.

(To be continued.)

### THE MODERN FARMSTEAD.\*

By ARCHD. E. CHASEMORE (M.S.A.).

(Concluded from last week.)

*Calf Pens.*—It is a convenience in calf-rearing to have at least three pens for calves of various ages; the area of each pen should be about 150 feet super, and an additional pen of smaller dimensions is useful for isolating a sick calf. The divisions should be constructed of concrete, and the fronts of the pens of tubular galvanised iron about 4 feet in height with concrete trough outside, and yokes constructed in the pen fronts. By this means no food can be wasted by upsetting pails placed inside the pen, and one calf cannot steal another's food; moreover, there is no possibility of one animal getting an undue proportion of the feed. The paving of the pens should be as described for the cow-house, laid to falls and grooved.

*Bull Houses.*—One or more loose boxes in close proximity to the cow-house should be provided each to accommodate one bull. The apartments require to be about 14 feet square, with a ventilating window placed well above the animal's head. The door should be in two halves, the bottom portion about 4 feet 6 inches high, and a ventilating door, in addition to the upper part constructed entirely of iron should be provided. By this means additional ventilation can be obtained in the summer by opening the upper part of the wooden door, and closing the ventilating door to give security. The house should be fitted with an iron hay rack, and a concrete or stonework manger.

*Isolated Boxes.*—Two isolated loose boxes similar in accommodation to the bull house should be provided for sick animals, and should be placed well apart from the cow house or fattening sheds.

*Dairy.*—Where a dairy is intended for show purposes a great deal can be spent on its construction and fitting, but for general utility, combined with a strict regard to hygiene, such things as costly tiling, marble shelves and slabs, and ornamental fountains, &c., can well be dispensed with. A square building, or nearly so, is perhaps the most convenient shape to adopt, and for a farm where, say, fifty dairy cows are kept the size of the dairy need not exceed 16 feet square, and should adjoin and have direct access to the can or utensil room, about two-thirds the size, and a third apartment for churning about the same size as the dairy. Where a large herd of dairy

\* From the "Journal of the Society of Architects."



cows is kept additional accommodation is required, such as a sterilising room, creamery; and recording and testing rooms, but for a business of medium proportions, and where the bulk of the milk is put on rail, the three apartments are sufficient. The internal facings of the walls should be of white glazed bricks, or otherwise rendered in cement, finished with a trowelled face for the whole height. Floors constructed of concrete, with a smooth finish, and laid for draining purposes with a slight fall towards the door. On no account should any drains or gulleys be placed within the buildings. The slabs and shelves should be of rubbed slate, supported on white glazed brick bearer walls, or galvanised iron cantilever brackets, and an ample supply of water provided for washing down and flushing, and boiling water for scalding in the utensils room. There should be no ledges for dirt or dust to collect, and for this reason the writer prefers a horizontal ceiling to an open roof. Light and ventilation should be carefully considered, and a northern aspect selected.

**Bullock Fattening Sheds.**—Accommodation for fattening bullocks is necessary on every farm, and is best provided by a series of boxes or lairs about 12 feet square in two rows on either side of a feeding passage, and with direct access to a covered court or courts. The sheds should for convenience of feeding be placed either at right angles, or in continuation of the cow house, in order that the feeding passages connect, thus enabling the food to be transmitted from the cake and root store by means of the railway or runway. The boxes need not necessarily be isolated, nor need the divisions be in iron, oak posts and rails of substantial construction suffice, so long as the feeding troughs are of concrete or stoneware. The external doors should be in two heights, and open outwards towards the courts. Ample ventilation is necessary, and can best be attained by louvres in the ridge running the whole length of the open roof.

**Stock Yards.**—The size of stock yards is governed in a measure by the arrangement of the buildings opening into the yards, but should not be less than about 100 feet by 60 feet, of which there should be two, half open and half covered by a two-span roof. Paved causeways around the yard are essential, and the surface of the yards should be sunk and dished to receive the drainage of all the buildings housing livestock, and paved with rough concrete or well-rammed chalk. The end of the yards should be enclosed with a brick or stone wall at least 4 feet 6 inches high, with a five-barred gate in the centre, which is preferable to a higher enclosing wall and solid gates of the same height, as it enables the cattle to be seen at all times without having to open the gates. The yards should be so arranged to admit as much sun as possible. In each yard should be provided a galvanised-iron water trough fixed securely on brick bearers, and fitted with a concealed ball valve on the supply.

**Cattle Courts.**—Two or three separate, but smaller courts for young cattle are necessary, each about 25 feet by 30 feet, with a shelter on one side about 15 feet in depth, preferably facing east or south-east, and a water trough similar to those described for "stock yards," placed in each court.

**Cart-Horse Stable.**—A farm of the size in question would require about 12 working horses, and the question of convenience and comfort needs careful consideration in planning and construction. The aspect is not of so much importance as in the case of some of the other buildings, but a position should be selected nearer to the entrance of the farmstead than the rest of the buildings, and it is important that grouping of this building with the wagon shed be borne in mind. Much time can be wasted by men and horses in going to and from the wagon shed if it is placed, as one often finds, some distance from the stable, and it frequently happens, when these buildings are far apart, that the carter does not trouble to take his cart or wagon to its proper place of shelter at the end of the day's work, but leaves it probably outside or near the stable exposed to all weathers.

A roomy, airy building, well lighted is essential, and in dealing first with the question of planning; where the arrangement of the farmstead admits, two rows of stalls with a passage way between is perhaps an advantage, particularly when the entrance door can be placed at one end of the passage, and a harness room at the far end. Although a building arranged in this way requires a roof of greater span, the extra cost is compensated for by the saving in brickwork, and the advantage of being able to lead a horse straight in or out of the stable without turning right or left-handed. For stables arranged on this plan, the width between heel posts of opposite stall divisions should not be less than 12 feet, as there would be danger of a horse hanging back and kicking its rear neighbour if the passage were curtailed. The depth of the division from wall to heel post should not be less than 10 feet and the width of the stall 7 feet, which would apply also to a single row of stalls. It is wise to allow a minimum height of 12 feet from floor to ceiling, or in the case of an open roof 9 feet to the tie beam, and the height of the entrance doorway should not be less than 7 feet. The internal walls should be rendered in cement to a height of 5 feet, excepting at heads of stalls, where the rendering should be limited to the height of the manger, and the wall above to a height of 7 feet above floor faced with buff glazed bricks, so that all parts in which the horse is likely to come in contact can be washed down and scrubbed. Blue Staffordshire bull-nose bricks to the angles of doorways are to be recommended both as a protection to the animal and the building. The doors should open outwards. Wooden fittings are more generally found in the older farm stabling, and in many instances in the more modern buildings, but chiefly from a sanitary point of view, wooden fittings are to be avoided. Stall divisions having iron heel posts continued up to ceiling level, which help to support a floor above, and to which harness brackets can be attached are more suitable for this description of stabling, and the rails and sills of division also of iron filled in with oak or elm boarding make the strongest division. The mangers should be of iron, having a rolled front edge with a compartment for mixed food and another for hay, which is preferable to the overhead rack, the seed and dust from which is liable to injure the horses' eyes, and is very wasteful, as the hay is pulled down by the horse and becomes trodden in, and mixed with the litter. Whereas hay fed in a manger rack with a top grid prevents all waste. A ventilating window with side cheeks opening inwards over, and well above the head of each horse affords ample light and air without causing draughts. Another important point is that of paving, as the heavy wear on the floor of a building of this nature is considerable. The stamping of a Shire horse requires no little resistance, and granite setts on a good foundation of concrete is the only paving that can be relied on, and regarded as a permanent flooring for stabling accommodating heavy horses. The paving should be laid to fall towards a grooved open channel running, where the length of the building is not too great, through the outer wall, discharging on to a gully outside, with branch channel continued half-way up each stall, thus avoiding any concealed drainage within the building, but in the case of a long range of stabling, the difficulties of falls may necessitate gulleys within the building, the gratings of which should be exceptionally heavy and strong. The open channels above-mentioned should not be deep or dished, which have crippled many a horse through the habit acquired of standing with the hind toes in it, but two or more parallel grooves not more than 2 inches wide or an inch and a half deep, which is sufficient to carry off all liquids. Provision should be made for watering, and for this purpose a galvanised-iron trough similar to those described for stock yards will be found most convenient; a further supply of water laid on to one or more stand pipes in recesses formed in the outer wall will prove an advantage.

**Loose Boxes.**—A row of three or four isolated loose boxes about 18 feet square, with an angle hay rack

and manger are always of value on a farm, in which either a sick horse, a brood mare, or a colt can be placed, and provision made in one of them for slinging by fixing a steel joist across the box at the ceiling or eaves level with a travelling hoisting block attached. The windows and doors should be of the same description as those for the stable, but provided with a grille as described for the bull house.

**Harness Room.**—For a farm of this size the room may be about 250 feet in area, and communicating direct with the stable. It should be well lighted and the walls boarded, and provided with harness brackets of a specially heavy type. Arrangements for heating are unnecessary as, unlike carriage harness, occasional oiling is all that is required to keep it in condition. A bench for oiling and attending to the harness, and a few shelves for stable utensils is all that is necessary in the way of fittings, besides the harness brackets.

**Forage Store.**—A forage store for the exclusive use of the stable may be provided either in a separate building adjoining or over the stable, and fitted with bins for oats, beans, and chaff, and shoots to deliver the same into the stable below, should it be decided to place the store over the stable, and the provision of a hoist as described for granary is also to be recommended.

**Nag Stable.**—A separate stable, about 18 feet by 20 feet, to accommodate three light horses, and containing a loose box and two stalls is necessary. The materials most suited for the paving of this class of stable are either chamfered blue Staffordshire vitrified bricks, or Adamantine clinkers, the latter, however, although more pleasing in appearance, may be regarded as an extravagance. Grooved granolithic paving laid in situ, while making a very sanitary and comparatively inexpensive paving, soon becomes slippery, and is therefore inferior to the other materials mentioned. Open grooved vitrified channel bricks as described for cart-horse stable, discharging on to a gully outside the building, is the best means of drainage to adopt. The internal walls to a height of 5 feet should be rendered in cement, and that over the mangers faced to a height of 6 feet or 7 feet, with cream or green dull glazed bricks with cement joints. A high glaze is not recommended, as it reflects strong lights, and is injurious to a horse's eyesight. The wall space above should be distempered together with the ceiling, which should be lath and plastered, and not boarded. Steel ventilating windows, and a door as described for the cart-horse stables, give the best results. The fittings should be of iron, and the lower part of the windows filled in with wood, and the upper part of the loose box enclosure and door constructed entirely of iron with bars for ventilation, but that portion against the walls and adjoining the mangers filled in with an iron plate to prevent the horses seeing each other. Mangers similar to those described for cart-horse stables, but somewhat lighter in make are to be recommended.

**Harness Room.**—The harness room should adjoin the stable, preferably having no direct communication thereto, as the more humid atmosphere of the stable is injurious to harness, which should be kept dry, and a heating stove provided for that purpose. The walls should be boarded to their full height, and fitted with the necessary harness and saddle brackets, and a bench with drawers under placed in a convenient position for cleaning. A plain granolithic or quarry tile floor is most suitable, and the room should be well lighted.

**Coach House.**—The coach or gig house should be adjacent to the stable. A convenient size for the accommodation of two carriages is 18 feet by 16 feet, assuming that the vehicles are placed side by side. Similar paving to that of the harness room is most suitable. The space outside the coach house and stable should be paved, and a glass roof supported on steel stanchions outside the coach house is a great convenience for washing. Water should be laid on to a recessed stand-pipe outside the stable or coach house.

**Piggeries.**—The number of stys and yards necessarily depends on the extent of pig keeping intended by

the farmer. The following remarks therefore apply to one or more stys and yards. The sty is best constructed of brickwork with tiled or slated roof, and the floor together with the yard paved with granolithic paving. A convenient size for each sty is 6 feet wide by 6 feet or 8 feet deep, with a doorway 2 feet 6 inches by about 3 feet 6 inches. The height of the building need not exceed 4 feet 6 inches to the eaves. The yards should not be less than 6 feet by 8 feet, and enclosed with open iron railing thus allowing free ventilation. An iron gate fitted in the front, and a feeding trough with swing grating to allow of filling from the outside, and provided with a simple locking arrangement which secures the grating in either position is a convenience. The old-fashioned sty and yard of timber construction should be avoided, chiefly for sanitary reasons.

**Implement Shed.**—It is very important that sufficient accommodation for implements is provided. Agricultural implements are costly, and on a farm of 500 acres or thereabouts the following implements are required: two self-binders, a corn and seed drill, two combined mowers and reapers, two swath turners, a cultivator, a horse rake, three ploughs, two rollers, and a thrashing machine, and portable engine. The collective value of such implements above-mentioned would amount to something like five or six hundred pounds. It is, therefore, obvious that the cost of protecting such implements is money well expended. The thrashing machine and engine need a higher building than the rest, and for that reason a separate building is advisable and requires to be about 12 feet wide and 40 feet long, and to have a clear height of 12 feet. A substantial floor of granite setts on concrete to resist the weight is essential, and an iron flue fixed over the position of the engine funnel, and carried up through the roof with an inverted hopper or hood at the bottom end. A building about 60 feet by 25 feet would accommodate the rest of the implements, and anything above 7 feet high to the eaves would be unnecessary.

**Workshop and Tool House.**—The workshop and tool house, about twenty-five feet by fourteen feet, could be situated over a portion of the implement shed, but would be found more convenient if placed on the ground level.

**Blacksmith's Shop.**—A blacksmith shop fitted with a forge where the farm is any distance from a town or village is a valuable adjunct. The building could adjoin the workshop and would require to be about twenty feet by sixteen feet, with an open roof provided with a louvred ventilator.

**Manure Pit and Tank.**—The drainage from the yards should pass into a liquid manure tank about twenty feet by ten feet, and ten feet deep, constructed of brickwork with concrete dished floor, and brick domed, or concrete and steel roof, and provided with a pump, adjoining which should be placed the manure pit about four times the area of the tank, with a sunk concrete floor falling towards and discharging into the tank. The pit should be covered with a corrugated iron roof with steel principals, carried on steel stanchions and the runway or railway continued from the cow house and fattening sheds, and so facilitating the conveyance of the manure.

**Poultry House.**—Although portable wood poultry houses placed either in an adjoining meadow or orchard are now usually adopted, where poultry keeping is not carried on for profit, the provision of a permanent building forming part of the farm buildings is sometimes still preferred, as a position well chosen enables the fowls to a great extent to get their own living. A building twenty-four feet by twelve feet, with a cement floor, and provided with nest boxes and perches, and in addition to the door, an opening formed in the wall with the usual lift-up traps is all that is required.

**Office.**—For the office which should be near the entrance to the farmstead, a room about fourteen feet by ten feet is sufficient. It should be provided with a fireplace, and well lighted with a window commanding a view of the busiest part of the buildings.

*Lavatory, W.C., &c.*—The selection of a position for a lavatory, &c., is of no great importance, so long as it is not placed in too remote a spot to be forgotten by the farmer or bailiff, as its condition necessitates an occasional inspection. A position not too far removed from the cow house may be selected, but with due regard to its drain being connected with the house drainage, which must be quite separate from that of the farm buildings. One w.c. is sufficient, fitted with a stoneware pedestal closet and flushing cistern with water laid on, and a urinal on one side, and a lavatory fitted with two stoneware basins for washing the hands of milkers is most essential, and the advantage of adding a bath to the accommodation is appreciable. The walls of each apartment should be rendered in cement to a height of four feet, and the floors paved with cement on concrete. Above all they should be well ventilated and lighted.

*Rick Yard.*—The rick yard, placed on the north side of the buildings, would need to be about one acre in area, and a level site should be selected. Where the buildings do not form a boundary to the yard, it should be enclosed with a strong oak post and rail fence, with field gates conveniently placed.

*Dutch Barns.*—Two or more three-bay Dutch barns placed in the rick yard are a valuable addition to the farmstead, for reasons before mentioned. They should be constructed entirely of iron, with circular corrugated iron roofs, carried on steel principals, supported by steel stanchions standing on and embedded in concrete. The clear height to eaves should not be less than sixteen feet, and the enclosing of the ends with corrugated iron sheets brought down to a level of about ten feet of the ground is an advantage.

*Maintenance.*—In designing buildings of this nature, the question of maintenance should be borne in mind both as regards construction and the materials employed, so that the necessity for future repairs may be reduced to a minimum, for it is surprising how few farmers seem to realise the truth in the old adage that "a stitch in time saves nine." The writer has noticed particularly in the South of England what little attention is paid to defects arising from neglect, and what serious dilapidations have accrued from a small defect that, if proper attention had been paid to it in the first instance, would have been remedied in comparatively no time, and with the outlay of perhaps only a few shillings. The ultimate cost of remedying such dilapidations is often not the only loss. The writer could give many instances of damage to implements, machinery, grain, and live-stock, as the result of neglect.

A large amount of depreciation which is manifest on so many farms might be considerably reduced by the more liberal use of paint, particularly in the instance of implements and wagons, which are necessarily exposed to the weather, and which if periodically painted would last a far greater number of years.

## THE TRUE SCIENCE OF CHROMATICS.\*

By W. F. FRAETAS.

(Concluded from last week.)

### *The Colour Basis of the New Science of Chromatics.*

THE basis of this system of colour law rests on the three well-known primary colours, red, yellow, and blue. They form the foundational and primitive triad. All other colours in the perfect scale of twelve are developed from these by proportional admixture and overlapping of any two adjacent colours of this prime trinity. Red belongs to heat, fire, and expansion; yellow to light or the luminous principle; and blue to the cold, contracting ray. Each colour in this fundamental trinity of light possesses its own peculiar set of properties and distinc-

tive attributes. Each has its own special duty to perform in the economy of world life, nature, and art. It is very necessary for us to grasp this idea that all tone and tonal colour combinations and relations spring directly from these three primitive colours—red, yellow, and blue. We will not waste time with other so-called colour schemes which deny these three pure, perfect, and simple colours. "A thing is what it does," and this trite saying points to the fact that the truth of any question is in itself, and if anyone will only study it closely and long enough the essential facts will reveal themselves in all their perfection. I have consistently held this attitude of mind in all my investigations and researches, that it is the business of every theory of art or science of colour to demonstrate its own truth by perfection of systems of correlative facts or related groups of ideas or serial orders of truths according to concepts which possess inherent qualities in themselves and will determine the ordering of each series of facts or groups of ideas and the precise and definite interrelation each bears to the other. My system of colour law will fulfil these conditions perfectly. It is only by recognising the red, yellow, and blue as essential and foundational colours that we shall be able to untwist the sacred chains that tie the hidden soul or harmony.

The second triad or triangle of colour is developed by mixing any two pure primary colours in equal parts or proportions. By mixing red and yellow we have orange, yellow and blue give green, red and blue yield violet. These three new colours, or the second chromatic triad, are commonly known as "the secondaries," and are the exact or perfect opposites in the colour compass or circle to the three primary colours, and because these three new colours possess similar positive properties to the three original primary colours the consequences are green becomes the contrasting colour of red, orange will contrast blue, and violet the yellow. By combining these two opposing triads of colour primaries and secondaries we have a double triangle or hexagon of colour. By careful experiment, observation, and analysis I have discovered that red, orange, yellow, green, blue, and violet arranged in a circle sixty degrees apart are dominant, forceful, active, life-giving, radiating colours. I have therefore named them positive colours. This colour law is related to electricity, chemistry, and kinetics, having positive and negative aspects, properties, and motions. These six positive colours represent positive colour-currents, waves, or undulations, therefore those desiring a true understanding of the new science of colour must recognise and consider red, orange, yellow, green, blue, and violet as *energia* centres radiating distinctive powers and potencies. In nearly all modern text-books on colour, writers have stopped with these six well-known colours, and then developed what are known as the tertiary colours, such as browns, slates, and olives; but the completion and perfection of a true science of chromatics demand six more pure colours before we can recognise the above-mentioned colour hues or greys. We will now consider them. The evolution of the six negative colours is determined by simply continuing the process of further mixing of the three original primary colours—red, yellow, and blue. Only this time it is done in unequal parts of any two adjacent colours instead of equal parts as was done in the production of the three secondary colours—orange, green, and violet. The six negative colours can also be obtained by mixing the primary colours with secondary colours. For instance, red with orange gives red-orange, yellow with orange gives yellow-orange, yellow with green gives yellow-green, blue with green gives blue-green, blue with violet gives blue-violet, and red with violet gives us red-violet. Thus it will be seen that the six negative colours are red-orange, yellow-orange, yellow-green, blue-green, blue-violet, and red-violet, and comprise two perfect triangles or the hexagon of negative colours. By this very simple means we have

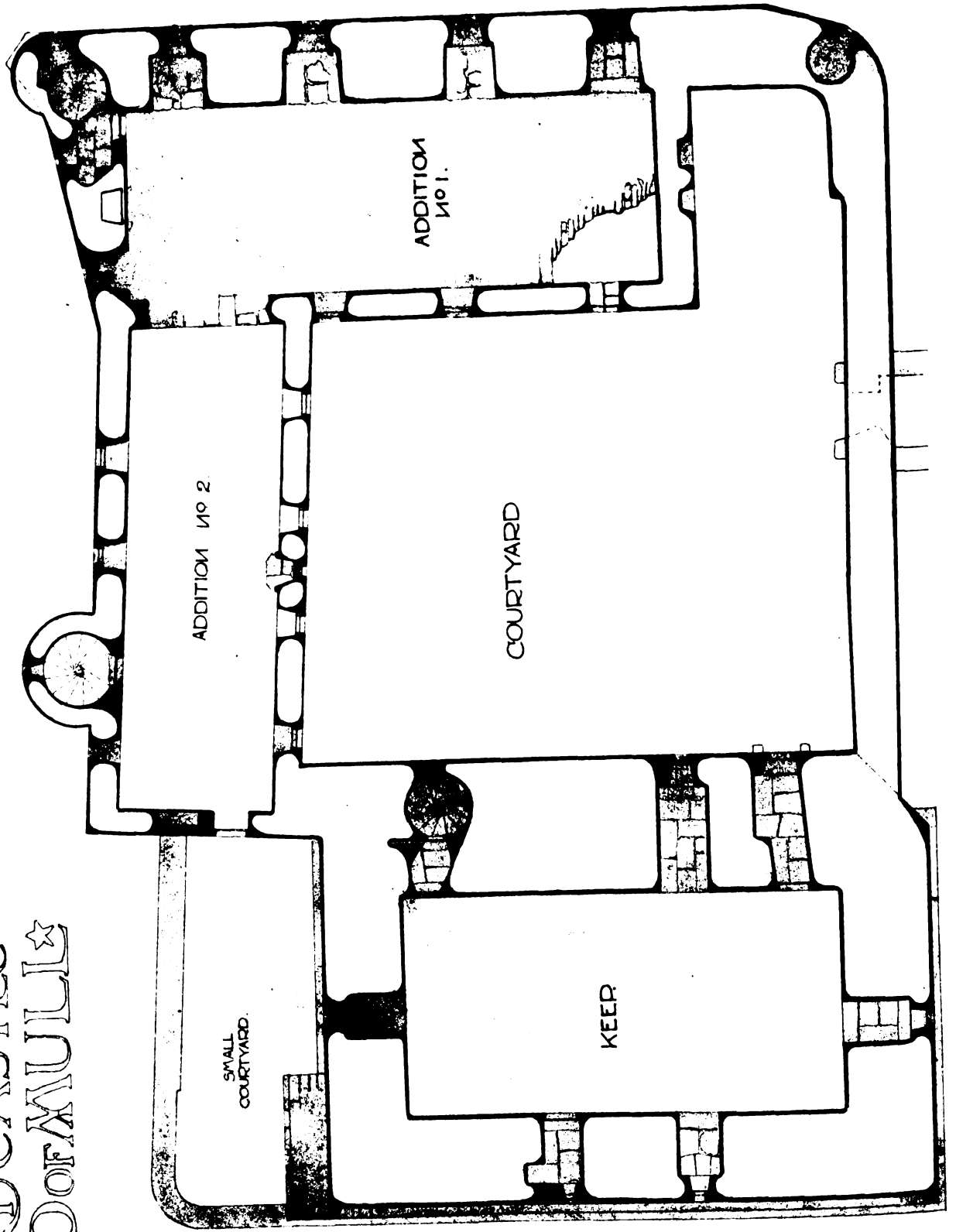
\* A Paper read before the Cape Institute of Architects and the Students of the South African School of Art.





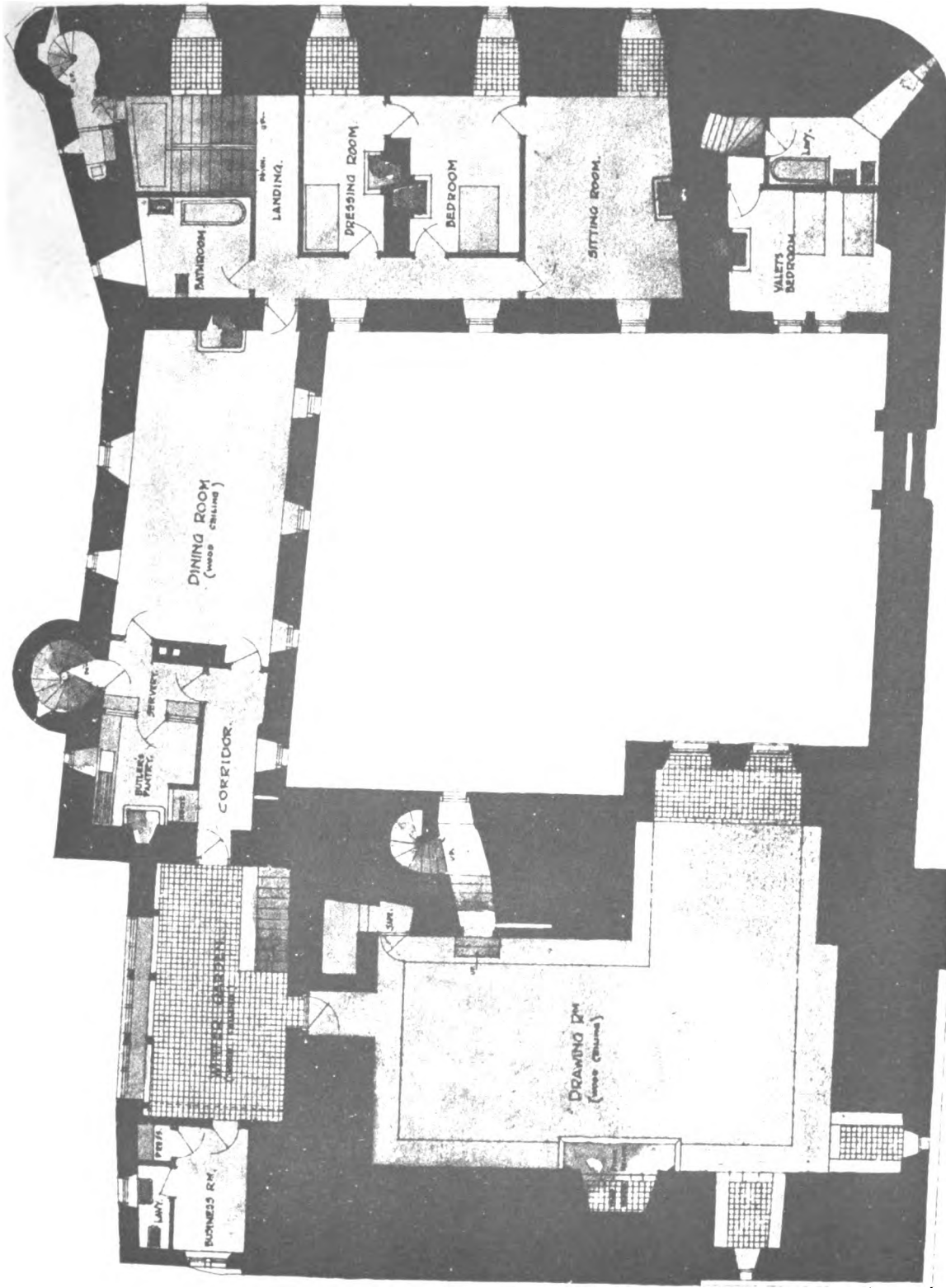
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# DOWARD CASTLE. ISLAND OF MULL★



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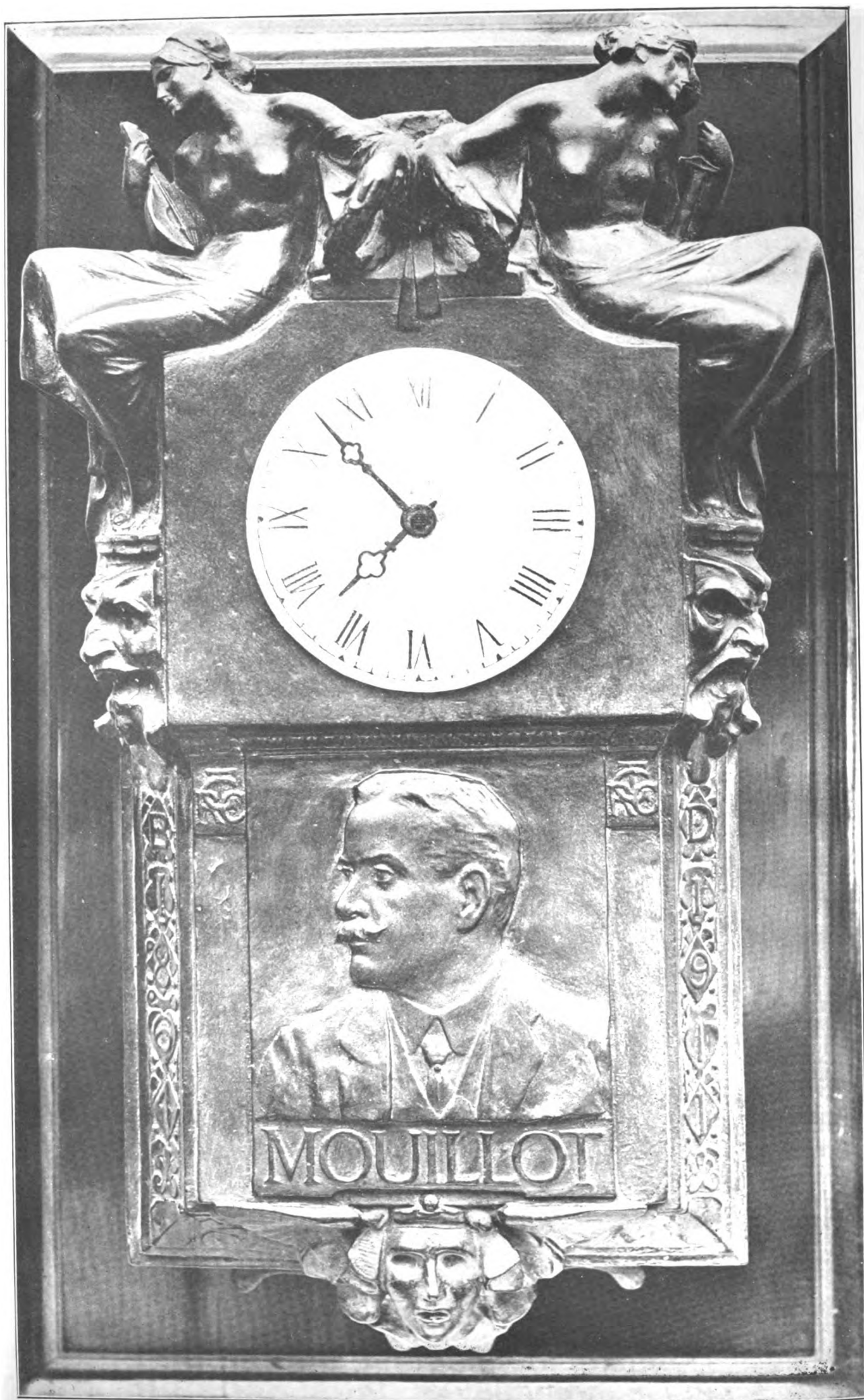
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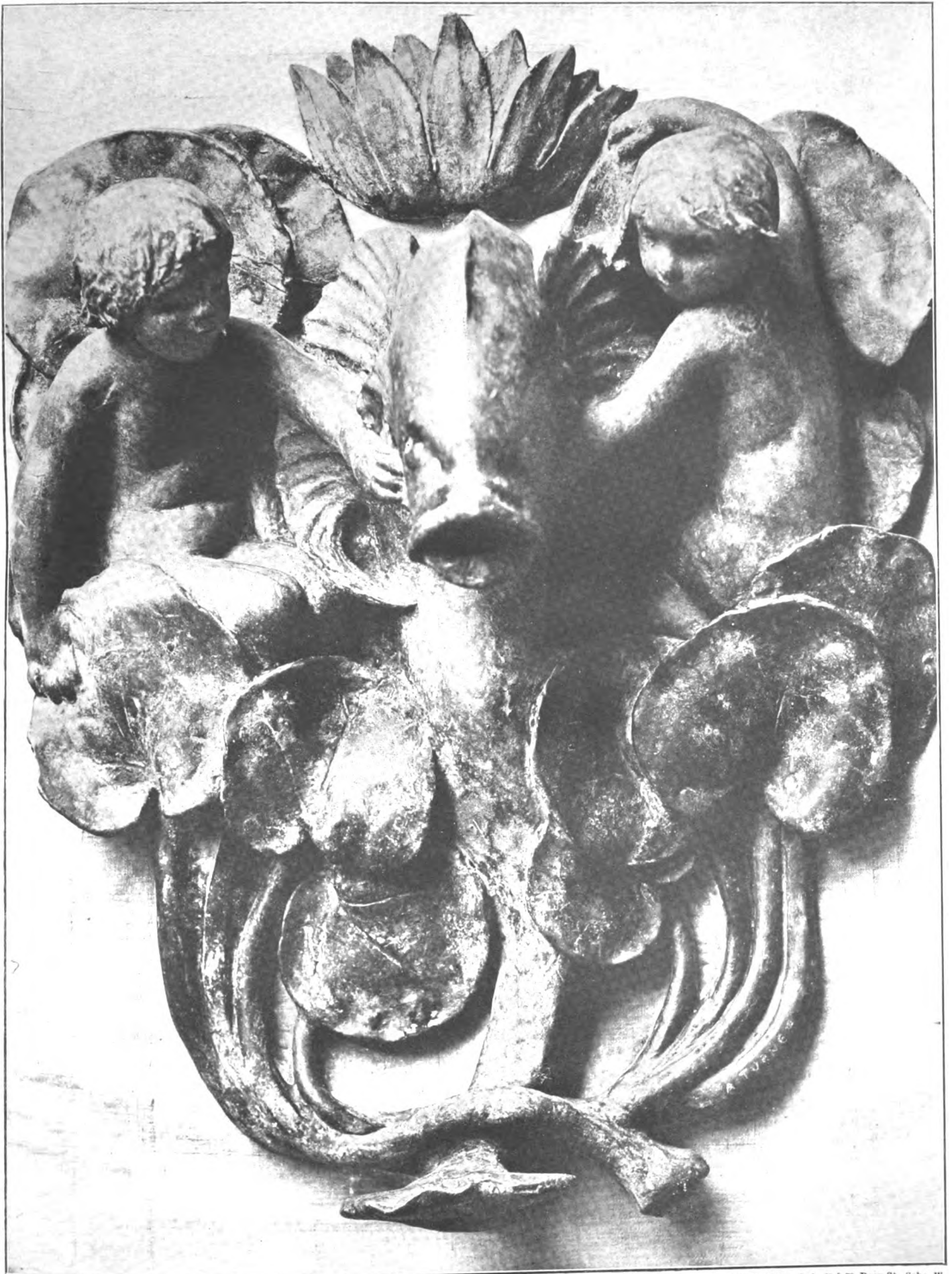
BRONZE MEMORIAL CLOCK, RECENTLY ERECTED IN THE GREEN ROOM CLUB

IN MEMORY OF THE LATE F. MOUILLLOT, ESQ.

By MR. FERDINAND V. BLUNDSTONE.

(Royal Academy Exhibition, 1916).

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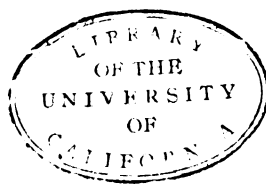
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"TWIST-TAIL" GARDEN WATER TAP.

By MR. ALFRED TURNER.

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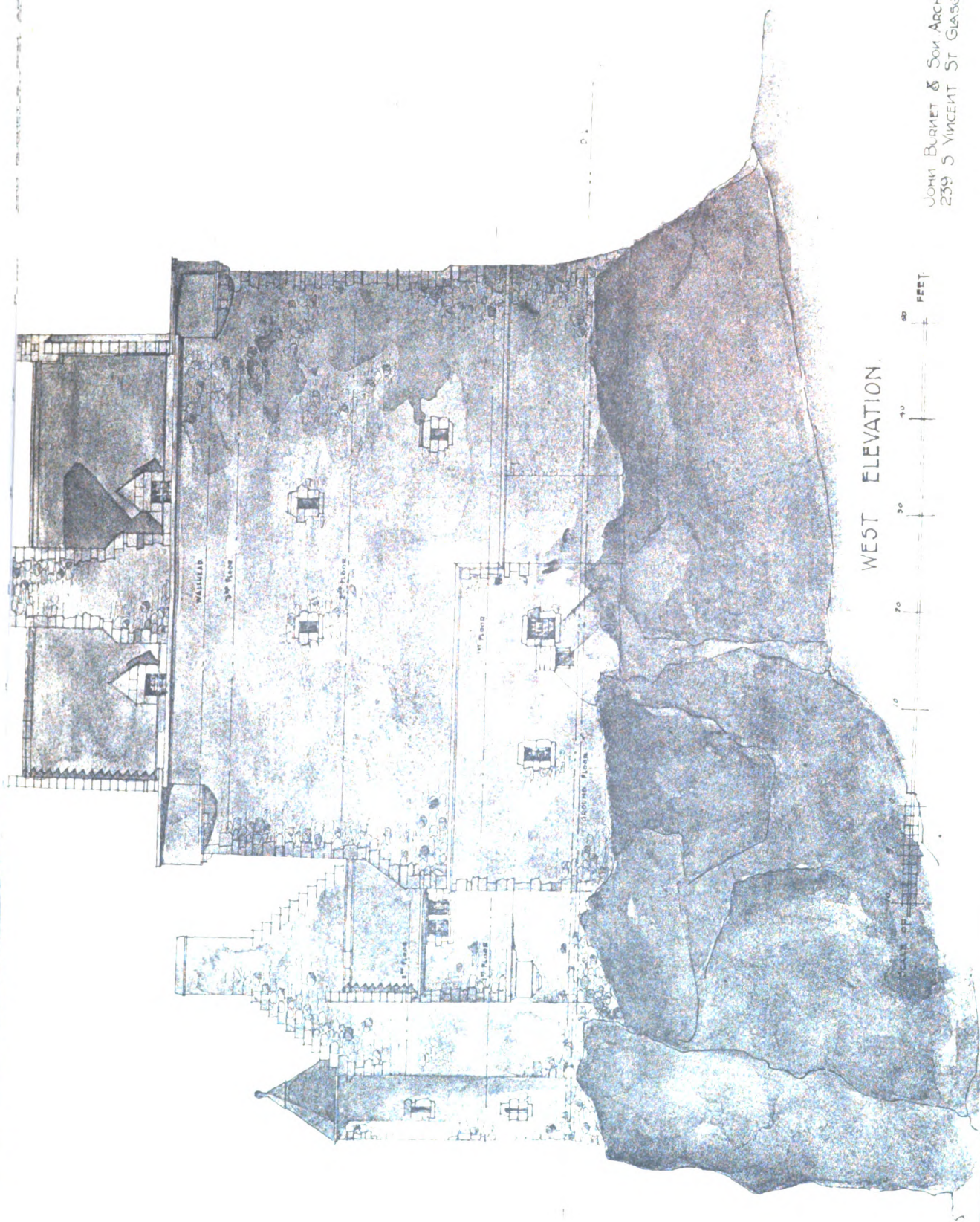
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ELEVATION  
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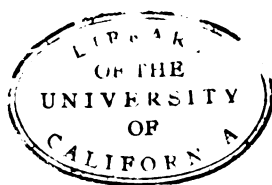
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(Royal Scottish Academy, 1915.)

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arrived at a perfect and complete circle, quadrant, or protractor of colour—the perfect arch measurer, having twelve standardised and balanced colours, thirty degrees each. This colour quadrant can also be divided into further divisions for finer colour calculations and determinations, which finer system is so delicate and perfect that it can only be grasped and understood after careful study of the present presentation of colour law and science of chromatics, and in this manner approaches most nearly to the imperceptible gradation of the many colours in the solar spectrum.

That a great harmony exists between the many laws of nature has been surmised for many years past. That the ancients had a code—or shall I say a synthetic law or a set of co-ordinating principles?—which governed all their works of art and architecture is well known, although we are ignorant of their science and methods. Close observation reveals the astonishing fact that they derived all their knowledge from a deep study of nature and her laws. In our day art is taught more or less in a perfunctory manner. No attempt is made to subject the student to any form of mental or scientific training. The Greek artists, we are told, as well as those of the Middle Ages, were men of great learning and had many accomplishments. Their painters were also gifted with a knowledge of music, sculpture, and architecture—some even understood the principles of chemistry—and all entering schools were required to have a thorough and accurate knowledge of geometry. Geometrical principles represented to the student the grammar of divine art, which principles they saw everywhere in the marvellous symmetry of the crystal, having its counterpart in the perfect formation of the flower and the shell; also that these geometric principles were evident throughout the universe. *It was through the knowledge of orderly and exact methods that they perceived the beauty of proportion.* A true law of proportion will give us the method of producing various forms of colour harmony. In this new system of chromatics we have a perfect plan for producing the greatest variety of colour groupings with the greatest simplicity, order, and unity of idea and design. A true law of proportion yields mathematical and geometrical formulas, and a philosopher rightly said “Formulas create miracles.”

We will now reconsider our colour compass or quadrant and see of what it is composed. We find there are four perfect triangles of colours, each having dissimilar properties. We also have three colour squares. Each square possesses colours having dissimilar properties. The twelve colours in the perfect circle can be defined as made up of triangle, three multiplied by square four. The twelve parts, spaces, or areas of colours in the circle form the basis and reveal the perfect law governing the evolution and unfoldment of tonal and chromatic harmony.

The circle thus arranged also shows us the division of the twelve colours into six positive and six negative colours. By careful observation and analysis I have discovered that there are two distinct motions in the circle—one to the right and one to the left. The motion of the six positive energia colours is clockwise—radiating, outgoing. The six negative potentia colours have anti-clockwise motion—concentrating, incoming.

I have discovered seven great principles connected with colour motions and movements which may be defined as follows:—

- |                 |            |
|-----------------|------------|
| 1. Principality | } Harmony. |
| 2. Radiation    |            |
| 3. Alternation  |            |
| 4. Focalisation |            |
| 5. Organisation |            |
| 6. Equilibrium  |            |
| 7. Opposition   |            |

The result of the action of these seven principles is harmony. These seven great principles are applicable to each of the twelve colours. From each colour—which

may be called the key colour—is derived various ordered sequences of three, five, and seven each. But no scale of colour so derived can go beyond seven truly related colours. The number seven, then, rules phenomenal perfection and completion in colour, music, and form. Each colour possesses seven distinct qualities, of which the most important may be defined as dynamic, rhythmic, and static. These three qualities are common to each of the derived scales of three, five, and seven colours, and any harmonic chord or group of chords developed from the keys in the colour circle will be found to be so arranged that each colour will be separated from another by a definite number of degrees or intervals apart and will convey chromatic melody, cadence, and harmony to the eye.

By the principality of colour is meant the unitive character of each colour key in and by itself.

Radiation denotes the first prime movement and direction of a key or principal colour.

The principle of alternation develops the true and proper division of the twelvefold scale into positive and negative colours, and determines the exact order of keys of colour and their progression, also their relation to each other, and is symbolised by the ideal angle.

The principle of focalisation of colour involved in this scheme is necessary, as every true group of colours must have a perfect focal centre. This focal centre is the vital point of interest in any perfect group or ensemble of colour. It is the point where all the colours employed are controlled and directed.

Organisation is the principle governing colour massing and grouping.

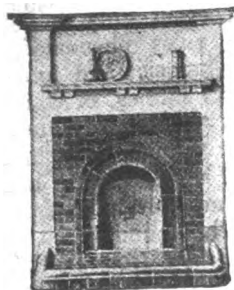
In the principle of equilibrium is to be found the correct balancing of positive and negative qualities of colours in any scale.

In every true family of colours we have only one direct point of opposition or contrast, which gives stability and limitation of action. Opposition, with the other principles mentioned, results in harmony.

It is impossible for me to give you in a short paper and demonstration the magnitude of this system of colour law. I have been asked to give you a simple exposition only, and cannot therefore go deeply into this subject. At the same time any thoughtful mind must see that by placing the twelve colours in the sequence described into a circle a further division into twenty-four, thirty-six, seventy-two, and 144 divisions must be equally possible, and that these divisions can also be utilised in the creation of true chords, groups, and scales by methods to be described later. Consider, then, the circle as a living vital chromatic circuit having positive and negative qualities and also major and minor aspects, and that each colour in the compass possesses three great prime states: dynamic, rhythmic, and static. Also that this circle is the means of yielding through point, line, triangle, right angle, square, pentagon, hexagon, ideal angle, seven-pointed star, and other geometric figures all the possible laws of tonal and chromatic harmony imaginable—harmonies of colour that are absolutely true and perfect. I will show presently that these scales, or colour families, are generated with perfect accuracy and perfection; in other words, geometrical point, line, and angle are the sole means, basis, and foundation of the law of chromatics.

In every text-book harmony is wrongly defined. How can colours in simple or compound contrast be considered in harmony? How can a clash of colours or tones in direct opposition to each other be defined as in harmony? Harmony of form is revealed when lines and angles are in agreement; harmony of musical tones arises when sounds are properly related; and harmony of colours I will show for the first time in the history of science and research to be likewise under the self-same rigid law and governed by the same fundamental principles. When colours are truly related or correctly arranged, then harmony results. After eight years of patient study and research abroad I have not found a





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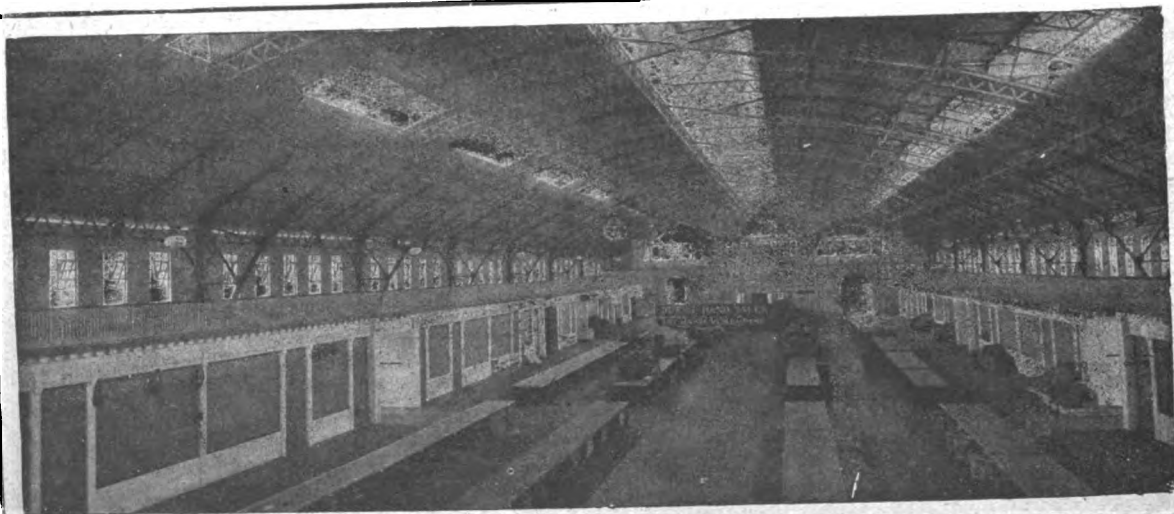
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single correct definition of a perfect demonstration of colour harmony.

This is the first public demonstration of my discovery, and in the history of the world is the first correct definition of what constitutes colour harmony, and I challenge anyone to show a similar law, scheme, plan, method, process, or system of colour harmony, either ancient or modern.

From a pure scale of twelve standardised fundamental colours and by the use of twenty-four mathematically designed movable indicators I am able to generate thousands upon thousands of pure colour sequences, families, groups, or scales; also with the use of white and a compound black-grey, made up of the three primary colours, this system will produce hundreds of thousands of tints, shades, and hues.

Anyone understanding the psychology of painters will see that this system of colour law indicates pure colour harmonies to the Turner type, and also supplies a system of colour, hue, and shade of the Whistler type. The twenty-four indicators mentioned reveal the true synchronism of colour and tone, also all cyclic and periodic laws and melodic, harmonic, and rhythmic principles associated with them. Briefly, I am supplying a true and perfect chromatic instrument to the world.

Colour is perceived by the sense of sight. We can discern forms by feeling (touch) and seeing (sight). Perception of colour and perception of form are definitely related. Sir Oliver Lodge once remarked that "the laws of nature are a diagrammatic framework analysed or abstracted out of the comprehensiveness of reality." The poet Whittier must have felt the same truth when he wrote:—

"Above, below, in sky and sod,  
In leaf and spar, in star and man,  
Well might the wise Athenian scan  
The geometric signs of God,  
The measured order of His plan.

And India's mystics sang aright  
Of the one Life pervading all—  
One Being's tidal rise and fall  
In soul and form, in sound and sight,  
Eternal outflow and recall."

The ancient sage and philosopher said "God geometrises," and when we gaze into the mystic heart of natural beauty we shall find to our amazement that the minutest gem, the snowflake, the dazzling flower, the daintiest bird upon its wing, the stately oak, the loveliest child, and the twinkling star o'erhead all derive the glory of their colours and the majesty of their forms from the magic properties of inner ratios fixed by geometric law. Those, then, who are attempting to build the temple of vital, living, and spiritual art without a true knowledge of the mighty corner-stones of the creative, constructional, and expressional spirit of pure beauty are doomed to inevitable failure. Hear, then, another poet's message:—

"Turn your ear  
To all the wordless music of the stars  
And to the voice of Nature, and your heart  
Shall turn to truth and goodness as the plant  
Turns to the sun. A thousand unseen hands  
Reach down to help you to their peace-crowned heights  
And all the forces of the firmament  
Shall fortify your strength. Be not afraid  
To thrust aside half-truths and grasp the whole."  
—Ella Wheeler Wilcox.

At the conclusion of the paper Mr. Fraetas explained the basis of his system of Colour Law or Science of Chromatic Harmony, and exhibited a large number of charts, diagrams, and movable indicators; also demonstrated how the various groups and scales of colour are generated according to fixed laws of degrees and geometric angles, showing correct proportions and true chromatic relationships. Two experimental pastel

paintings were shown to the audience done in a yellow-orange key in two different pitches, which demonstrated how this system of colour law can be applied in the various fields of human endeavour.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

### Australian Commonwealth Parliament Building Competition.

SIR,—Your attention has probably been called to the fact that when it was announced that the Commonwealth Government intended to proceed at once with the competition for the Australian Parliament building, the Royal Victorian Institute of Architects cabled to the R.I.B.A. to inform us that they were opposed to the holding of the competition till after the war, and to request us, in conjunction with the French Architectural Societies, to express our opinion on the subject to the Commonwealth Government. The Competitions Committee of the R.I.B.A. at once took action. The French Architectural Societies expressed their agreement with the views of the Victorian Institute, and on September 5 Mr. Fisher, the High Commissioner for Australia, gave a very courteous and sympathetic hearing to a deputation from the R.I.B.A., consisting of Mr. H. V. Lanchester, Chairman, and Mr. Herbert A. Welch, Hon. Secretary of the Competitions Committee.

Mr. Fisher promptly sent a cablegram to the Commonwealth Government, expressing the views of the R.I.B.A. and of the French Architectural Societies, and it is hoped that at an early date we shall hear that our action has produced the desired result.—Yours, &c.,

IAN MACALISTER, Secretary.

September 6, 1916.

### BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

#### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### DURHAM.

Sunderland.—Temporary hospital, Ashburne Court. Messrs. Henderson & Hall, F.R.I.B.A., architects, 28 John Street.

Offices, Ropery Road: additions for Messrs. Webster & Co.

##### LANCASHIRE.

Accrington.—Broad Oak Print Works: extensions for the Calico Printers' Association.

Bispham.—House, South Parade, Anchorholme, for Mr. J. Leach.

House, Norbreck Road, for Mr. J. Garner.

Morecambe.—Two semi-detached villas, Margaret Street, Bare. Mr. F. Moore, builder, Granville Road.

##### MONMOUTHSHIRE.

Pontypool.—Premises, Commercial and Crane Streets: alterations for Messrs. Fowler.

##### NOTTINGHAMSHIRE.

Worksop.—Motor shed, Beech Avenue, for Mr. W. Schlör.

##### STAFFORDSHIRE.

Leek.—The "Wellington" Inn, Strangman Street: additions for Messrs. Marston, Thompson & Evershed.

##### SUSSEX.

Eastbourne.—Lovely's Garage, Cavendish Place: addition. Mr. H. Cressy, builder.

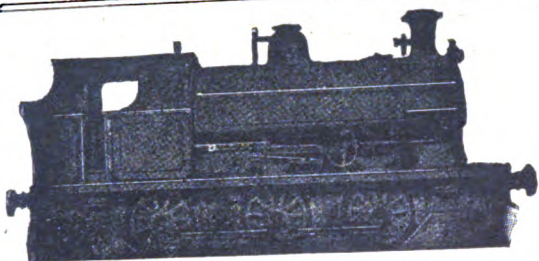
Garage, Towers House, Chesterfield Road. Mr. F. G. Cooke, architect, 2 Hyde Gardens. Messrs. H. Martin & Sons, contractors, 1 Cornfield Terrace.

##### WESTMORLAND.

Windermere.—House, near Millerground. Messrs. Patinsons (Windermere), Ltd., builders.

The Old College: addition for Mr. A. H. Raikes.





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# THE ARCHITECT

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### MUNICIPAL SANITATION IN WAR TIME.

THE activity of our municipal authorities in sanitary matters during the war has perforce been diminished for two reasons, first, the necessity for national retrenchment of expenditure in all matters not immediately connected with our present primary object of winning the war; second, the reduction of the staffs of municipal authorities by the drafting of employees of military age into the fighting forces of the Crown and the munition works of the Government.

As the presumed object of municipal sanitation is the maintenance and improvement of the public health, and as these desiderata have a vital effect on the efficiency of the nation, not only in peace but in war time, in which latter it is of primary consequence, it might seem at first sight as if any diminution of municipal activity in sanitation would be prejudicial to our main object of an early termination of hostilities by the attainment of a victorious peace.

It may with justice be claimed that there can be no doubt that the sanitary work of the last fifty years has vastly improved our position for carrying on the present war, and that, if we now had the high death rates, the high sickness rates, and the serious epidemics of infectious disease that we had forty or fifty years ago, our war efficiency would be much lower, or, in other words, that the sanitary work of the last half-century has proved to be war work of the greatest value.

The suggestions that have been made, and in many instances carried out by our municipal experts, for, first, the reduction of expenditure, and, second, the maintenance of efficiency with depleted staffs, compel however the consideration that there must be a large margin between the sufficiency of sanitary provision and an expenditure in peace time, unnecessarily expanded by extravagance and luxury. If it is found possible in war time to reduce expenditure either in material or in staffing without a sensible diminution of efficiency in sanitation, it is obvious that, amongst the many lessons the war has taught us is included the fact that our pre-war practice has been unduly influenced by fads and fancies, by extravagance and wastefulness. It does not, of course, necessarily follow that because we are able to scrape along during the time of a war of short duration, with a considerable reduction of expenditure on sanitation, that we have hitherto been too lavish. The true test would be the clearly evident debasement of public health consequent on the reduction of sanitary measures.

Roads and streets, their maintenance, cleansing, watering, and lighting, in normal times absorb a very large proportion of the expenditure of municipal authorities, but reduction of this expenditure is a matter that requires caution and sound judgment. A neglected road soon falls to pieces, and a road that is allowed to founder costs a very large sum indeed to reinstate. The true line of economy would appear to be early repair in preference to renewal on the principle that "a stitch in time saves nine." Increased watchfulness and im-

mediate slight repair is work that can be easily done by men beyond military age, or even by women. It demands careful and assiduous attention rather than strength and the lavish use of costly material. It implies the postponement of the substitution of a better or more costly material for the surface of a carriage-way. The example of the management of the French "routes nationales" is one that might with advantage be followed more closely by our municipal authorities in peace as well as in war time.

Street cleansing, watering, and lighting are operations in which economy can be found chiefly by careful attention to detail. They must be continued in the interests of the public health, but there is no need for a water-cart to follow up immediately the downfall of a smart shower or for high-powered standard lamps with blackened glasses. There is in all municipal employment too close adherence to fixed routine, defiant of varying conditions, too little regard for small economies, which are fostered by the availability of public funds but which, if allowed in a private business, would spell bankruptcy.

Scavenging is an expensive item in municipal accounts, but is essential in the interests of public health. It is a department of municipal administration in which, in our opinion, business management is most conspicuously lacking. In the first place, too much refuse is collected; in the second, too little use is made of the value of the refuse. The householder throws everything into the dustbin. The Authority throws everything into the destructor or the tip. It is of little use to send out appeals to the public to "Burn all the refuse possible and so relieve your rates." It should be made worth while for the individual householder to reduce the amount of refuse that the Authority has to collect, cart, and dispose of, and at the same time to sort out the more valuable items, instead of dumping them all promiscuously into the dustbin, to be afterwards sorted out or, as at present, destroyed. The present price of old paper, rags, bones, bottles, tins, and pieces of unconsumed coal makes it important, in war time, that such valuable waste products should be recovered, but, even in peace, the Golden Dustman was no myth or figment of an author's vivid imagination, and municipal authorities have the opportunity, with proper organisation, of becoming golden dustmen for the benefit of the rates. Unfortunately rates are not dividends.

As regards sewerage and sewage disposal, there can be no doubt that much of the benefit the public health has derived from sanitation during the last fifty years is due to the improvement made in this direction, and any slackening of effort, even any postponement of necessary extension, means a loss of public health and efficiency. There is, however, room for the exercise of strict caution and careful consideration as to whether any particular proposed work is absolutely necessary or merely, in someone's opinion, desirable. Expenditure on sewerage should not be stopped or even postponed, simply because it is war time, though it may be imperative, on account of more urgent claims on men, money, and material. In the matter of sewage disposal, as we have already indicated in other departments of municipal sanitation, there is undoubtedly room for economy to be effected by more strict supervision and attention to minutiae in the attainment of the maximum of efficiency for the minimum of expenditure on machinery and sewage-disposal plant. Farms can be made more productive, manurial products more profitable.

Economy in water supply resolves itself, chiefly, as has been recently pointed out by correspondence in the Press, into the elimination of waste in usage by the public. It has been estimated that about two-thirds of our present water supplies are wasted by improper taps and fittings and those which are allowed to remain broken or in dis-



repair, as well as by general carelessness in letting water run to waste. It is, we think, a matter requiring careful consideration by our water authorities, whether the supply should not in all cases be by meter instead of by a charge on rateable value. Only a very intensive system of inspection and the infliction of stringent fines will bring home to the average householder the importance of economy in the use and avoidance of the waste of water, and a direct appeal to his pocket, through the medium of quarterly bills for the amount supplied would, in our opinion, be far more effective. The conservation of our water supplies is of national importance, not only from the financial point of view, but by reason of the increasing difficulty of locating potential areas of water catchment. For the municipal authorities economy is once more to be found in closer supervision of pumping stations, filter beds, consumption of coal, lubricants, stores, and the attainment of greater efficiency for expenditure in working costs.

Public parks and pleasure grounds undoubtedly offer great opportunities for economy without detriment to the public health. As long as they are maintained as open spaces it makes little or no difference, from the sanitary point of view, whether they are kept up as trim and well-stocked flower-gardens or left in a state of nature. They are, indeed, public luxuries rather than necessities, and might be made profitable as vegetable- rather than flower-gardens. Their grass, instead of being kept as well-mown and rolled lawns, may be utilised as hayfields and pasturage. Their glasshouses may be filled with salads rather than exotics.

The medical officer's department is one in which economy by reduction of activity is in war time neither practicable nor advisable. War conditions impose greater strain not only on those who are immediately concerned in the fighting services or in the home provision of munitions and necessities, but on the general population, particularly of the poorer classes, whose wages have not advanced sufficiently to meet the inevitable rise in the cost of food and clothing, and the preventive measures of the medical officer and his staff are of more than normal importance.

To sum up—economy in municipal sanitation lies rather in the direction of increased efficiency than in decreased expenditure, and this economy is as well capable of development in peace as in war time.

### NOTES AND COMMENTS.

We are amongst those who deem the proceedings of the Trade Union Congress held last week to be a happy augury of the attitude of British working men in the future readjustment of relations between capital and labour after the war. It is, we think, perfectly clear that the trade unions recognise that there can be no literal return to the *status quo ante* in all details. A revision of our national fiscal policy in order to restrict the free importation of Germany's dumped goods is seen to be necessary in the interests of British labour, and the doctrine of buying in the cheapest market is no longer to be accepted as an unquestionable basis of national prosperity. Perhaps we might put it otherwise and say that the lowest price is not now accepted as inevitably the cheapest in the long run. The development of home industries, with its consequent extension of employment, is seen to be of greater advantage to the worker than the opportunity of buying cheap German goods without the money to pay for them. We believe we are right in regarding the insistence of the Congress on a restoration of trade union rules and customs, with its primary principle of restriction of output, as purely a matter of tactics, and that the British working man is quite prepared to do more work than he used to do if he is assured of a fair share of the profits of his labour. But the leaders of the trade unions, quite rightly, feel that they must have something to bargain with when the future relations of capital and labour become the subject of negotiation. They are quite pre-

pared, we feel sure, to drop the canon of restricted output when employers are ready to change their attitude towards labour. Labour must no longer be regarded as part of the raw material of production, but as a partner of capital, equally entitled to a fair share of the profits. How the effects of this principle are to be worked out in practice is a matter for negotiation and arrangement in each trade between the unions and the employers' associations, but the suggestion of Mr. Gosling for a share in the control of the workshops obviously does not go far enough. There must be a participation by labour in the management of the business. Labour must take a seat on the board and an interest in the prosperity of the concern. Only in this way can labour become really the partner of capital and obtain its fair share of the profits. When labour is such a partner, we shall hear no more of restricted output beyond such limits as are necessary to the happiness and well-being of the workman.

Standardisation is essential to the economic success of machinery, and hence engineering, which is chiefly concerned with the application of machinery, favours standardisation. But standardisation connotes stagnation. You cannot scrap your standards every week for the sake of improvement. When standardisation is proposed to be extended to buildings, architecture vanishes. For architecture aims at the provision in each individual building of the fittest form for its purpose and conditions, and recognises that scarcely any two buildings have exactly the same purpose and conditions. Standardisation of buildings is already a "fait accompli." The jerry-builder puts up a hundred houses all alike. A few of them fit their tenants, in the majority the tenant has to fit the house. But jerry-building is not architecture. Just as machine-made boots are standardised and some few boots fit the feet whilst the majority of feet endeavour to fit the boots and develop corns and bunions, enlarged joints and hammer toes, so with the standardised houses. Some of the tenants are cramped in their life and injured in their health because they have not enough room. Others have more room than they want and endure waste in rent and upkeep—or take a lodger. Standardised factories would be equally unable to suit every manufacturer or even every firm in a similar class of production. Architecture, that is, the evolution of the fittest possible building, is essential to the extraction of the highest possible profit in any manufacturing business, or even, it may be, of any profit at all. Of course the architect who designs a factory must understand the business, but it is part of an architect's training to understand the most useful form of every building he designs.

It is quite time that the public museums and art galleries of London were reopened. The educational loss and the business loss through their closure is far more than the paltry £50,000 a year which was said to be the saving expected to be effected. If this sum is realised, it means the cost of the war for a quarter of an hour, and for how long does the Government expect the war now to continue, for a quarter of an hour a year to make the difference between our outstaying or being outstayed by the enemy financially?

Llandudno is setting a good example to those localities whose governing authorities, like its Urban District Council, are slow to move in desired improvements. The Llandudno Improvement Association last year approached the Urban District Council in reference to the opening up of a right of way to the summit of the height known as Bryniau Hill, on the south side of the town, and they sought the assistance of the Commons and Footpaths Preservation Society in the matter. On the advice of Mr. L. W. Chubb, the Secretary of the Society, who visited Llandudno last year, it was decided to suggest to the Council that the Ecclesiastical Commissioners should be asked to grant the right of way desired, either in perpetuity or on lease at a nominal rent, the summit

being set apart as an open space for public use. The Council acknowledged the letter, but has since let the matter drop. A meeting of the Committee of the Improvement Association has been held to meet Mr. Chubb for the purpose of a further consultation in regard to the right of way in question and other similar matters relating to Llandudno.

We are not sufficiently acquainted with the present personnel of Sheffield's City Council to feel justified in agreeing with or differing from a writer in the "Sheffield Daily Telegraph," who despairs of any considerable improvement in the city without "a new breed of City Fathers," but we are quite in accord with the leader writer in our contemporary, who says that "a city always gets precisely the City Council it deserves." Let the citizens of Sheffield show that they are in earnest in their desire for progress and the improvement of their city and the councillors will respond quickly enough—or get out.

The British Association has included the pressing topic of afforestation amongst the subjects of its deliberations. Sir J. Stirling-Maxwell, who has himself done extensive planting in the North of Scotland, read a paper on afforestation to the Botanical Section. Sir John is a member of a Government Committee that is inquiring into this question, and, though not putting forward the figure officially, hinted that our national policy ought to aim at a further one and a half million acres being planted, this in addition to restoring the existing acres of woodland now being rapidly cut down to meet the exigencies of the war. He said that in the past we had looked at this question entirely from the standpoint of profit and loss. That was entirely wrong. No other country looked at it solely from this point of view. Properly tackled, the problem would involve no loss. Afforestation would employ ten men where the same area of grazing would only employ one. He did not pretend, of course, that these islands could be made self-supporting in timber, but he thought we should aim at making the Empire self-supporting. If we could have six million acres of forest here, it would carry us over a period of five years—during a war or any other crisis. It was a mistake to fix a standard of altitude for trees. All depended upon locality and hill contour. He knew of spruce growing on Deeside at an altitude of 2,000 feet! The present Government was showing more interest in afforestation than all its predecessors put together, and, since there were ordinarily no votes on the subject, it behoved all friends of the movement to make their voices heard. Professor D. Somerville (Oxford) said this was essentially work for the State rather than for the individual. In the past everything had been left to the individual, and without further encouragement he did not think that the woods now being cut down would be replanted. Since 1905 our areas of woodland had shrunk by 35,000 acres. He suggested that individual effort should now be supported by loans with deferred payment of interest and capital, and that plants should be provided free or at a low price. But no amount of encouragement would enlarge the existing areas, and if the one and a half million extra acres mentioned by Sir John were to be planted it would have to be done by State action. He should be sorry to see 1½ million acres regarded as the limit of any State action, for we had in this country twenty million acres returned as rough heath, &c. This sort of land raised only 10 lb. of mutton per acre per year, whereas the average production of wood was one ton per acre.

In the "Liverpool Courier" occurs the following item of news: During excavations in demolishing the school of the Cathedral Choristers, in Abbey Square, Chester, an interesting discovery has been made. Below the level of the house the workmen came upon a line of corbels, and there have also been found the ancient sandstone walls of a space evidently part of the ancient build-

ings of the Abbey. There is a semi-circular arch in the south wall, a pointed arch (apparently a blocked-up doorway) in the east wall, and a small window in the west wall. Under the site of the house, which was once the residence of the headmaster of the King's School, was found (covered by an archway of brick) an additional bay of the ancient crypt which was evidently the monks' wine cellar—for still to be seen in its cool recesses are the stone shelves on which it is supposed were ranged the stores of wines which the monks kept for their own use or to dispense hospitality to their guests. In the north wall of the house, but above the floor level, there have come to light from their place of concealment behind a kitchen fireplace two ancient arched windows, which are now being filled with stones to preserve the line of archways. They will remain exposed to view.

The scheme propounded in the "Morning Post" by a correspondent for the erection of cottages to be occupied by those who, although not totally disabled, are prevented from following arduous forms of employment as hitherto, has its good points, but with one seriously detrimental. The money ought to be found by the State, not by private charitable contributions. Those broken in the wars have a right to such provision as shall enable them to live in comfort, so far as their injuries permit, not to such an inadequate pension as requires supplementary aid from charity. Another point which the writer does not seem to have considered is—what is to become of the cottages when the pensioners have passed away? Surely they are not to be of such ephemeral construction as not to outlive their occupants.

A practical piece of advice is given in the recent "Journal of Proceedings" of the Royal Victorian Institute of Architects by the City Electrical Engineer of Melbourne. He recommends that when designing or altering city premises, architects should always make provision of space for the installation of meters, main switches, and other apparatus at the point of entry of the electric-light service. Nowadays, in this country, the necessity of such provision is sufficiently obvious, and is recognised by architects, but even when there is no immediate intention of installing electricity, it is well to bear in mind that such is a future contingency not at all remote.

The importance of æsthetics as an element in medical treatment is the subject of a short article in the "Building Review," U.S.A., with which we are thoroughly in accord. There can be little doubt, although the fact is too often ignored, that the environment of the patient materially affects his recovery, and that beauty in a hospital is a potent agent in therapeutics. If there is healing virtue in sunny climates, in the scent of pine woods, in the stimulating sight of lofty mountain peaks, the curative effect of such appeals to the senses is surely in parallel with the influence of the interior of a hospital ward. The Aesculapian temples of healing were shrines of beauty, and the modern hospital should be something more than a huge shelter provided for the surgeon's, doctor's, and nurse's work, an aseptic workshop furnished with power and machinery, the latest tools, and the most perfect equipment and scientific aids to research and clinical efficiency. Indeed, the invalid, whose bodily powers and strength are below the normal, has, most frequently, a nervous system more keenly sensitive, for good or ill, to the phenomena of his environment, and so is more deeply affected by beautiful surroundings or their opposite.

The City Council of Sheffield, in taking objection to the application made by the Sheffield United Gas Light Company to the Board of Trade "for the substitution of a prescribed standard of calorific power of gas supplied by the company in lieu of the standard of illuminating power prescribed by the Sheffield Gas Order, 1910," is rightly looking after the interests of its citizens if it be



the fact that the supply of a low-grade gas, as proposed, would entail a saving to the Gas Company of £30,000 per annum, and an increase of cost to the consumers of £66,000 annually, but as, presumably, the reduction of quality in the gas has for its object the increased production of benzol and toluol, national necessities in war time, the citizens of Sheffield, who are sharing in the profits of munition manufacture to no small degree, should be prepared to put up with the inconvenience, and even loss, occasioned by the supply of low-grade gas during the war. It is not, of course, right that this loss should be concurrent with increased profit to the company, but, surely, prices could be adjusted to equalise matters in this respect.

#### REMINISCENCES OF BRUGES, JUNE 1914.

In the Rue Cour de Gand, not far from the Quai du Miroir, stands one of the two oldest houses in Bruges. The upper storeys are made of wood, and project slightly, but the ground floor has been restored. A tablet announces that it is the "propriété des Amis de Bruges,"



OLD WOODEN HOUSE, BRUGES.

and it is said to have been built in the fourteenth century, and to have belonged to Memline. There is no evidence of the truth of the latter statement, but it is undoubtedly very old, as the practice of building wooden houses was given up in the fifteenth century, and in the sixteenth Acts were passed condemning those that remained; only this and one other survived.

The Hôtel de Ville was built when Bruges was at the height of its prosperity. It was the pride and glory of the people, the symbol of civic liberty and self-government, and they lavished upon it everything which could increase its beauty. Every available niche was filled with a statue, every space decorated with sculpture. These have unfortunately perished, but there are still a few carvings on the lower stage which are full of interest and charm. On one of them a man is seated beside a young girl, his arms are round her, but he is turning towards a woman shrouded in a cloak, who is on the other side of him, and the girl is holding out a plate as if she were asking the woman for a flower she has in her hand. The meaning of this group is hard to guess; perhaps it is an illustration of some forgotten story, but even as an unsolved riddle it is very attractive. The composition and modelling are good, and the contrast between

the women very striking. On another a man is crouching down between two women, whose hands are uplifted to buffet him; his cap is pulled over his face, and he is bending his head in an attempt to avoid their blows. Perhaps they are playing a game of forfeits, or possibly



CARVINGS ON THE HOTEL DE VILLE, BRUGES.

it is an angry wife belabouring her husband with the help of a friend, on the day set apart for the chastisement of wicked husbands. The work is quite mediæval in feeling, even if modern in execution, for our ancestors loved rough humour of this kind.

#### ILLUSTRATIONS.

##### CEMETERY BUILDINGS, FOR THE WHITLEY AND MONKSEATON U.D.C.

THESE buildings have been erected at Hartley, Northumberland, for the Whitley and Monkseaton Urban District Council by Mr. W. D. Allison, Whitburn, Sunderland, and his men from the designs and under the supervision of Mr. Edward Cratney, F.R.I.B.A., M.S.A., whose designs were selected in competition by the assessor, Mr. A. W. S. Cross, M.A., and were illustrated in "The Architect" of March 13, 1914.

The site on which these buildings have been erected is close to the coast-line and directly exposed to the severe north-east gales. The questions of suitable materials and character of design were of great importance, and for this reason granite was fixed upon for the facing of walls, oak and teak for external woodwork, and simplicity of detail was the keynote that influenced the design throughout.

The Whitley and Monkseaton Urban District Council



are to be congratulated on their sound judgment in erecting such a well-built group of buildings in view of the exposed situation, and Mr. Cratney is also to be congratulated on the effect he has obtained by his originality of thought and admirable handling of grouping and detail.

The granite was supplied and worked by Messrs. John Fyfe, Ltd., Aberdeen, and laid in cement mortar and pointed with Pudlo and cement; lead gutters, rain-water heads, and plumbing, Messrs. Allinson & Sons, Gateshead-on-Tyne; lead glazing, casements, bronze grilles, and hardware, Messrs. Humphries, Jackson & Ambler, Manchester; clock, Messrs. Potts & Sons, Leeds; slates, the Tilberthwaite Green Slate Co., Penrith; slating, Messrs. S. Addison & Son, North Shields; painting and decorating, Mr. J. Millar, South Shields; oak seats, tree tubs, and external doors, Messrs. Robson & Sons, Ltd., Newcastle-on-Tyne; stoves, grates, and gas fittings, Messrs. Emley & Sons, Newcastle-on-Tyne; conservatory (teak) and heating, &c., Messrs. W. Richardson & Co., Darlington; oak fittings and furniture to office, Messrs. J. P. Bertram & Son, Earsdon, near Newcastle-on-Tyne; entrance gates and railings, Mr. James Symington, Snowdon Street, Newcastle-on-Tyne; notice boards and carving, Mr. R. P. Appleby, Prudhoe Street, Newcastle-on-Tyne; railings to N.E. corner, Mr. J. P. Finlay, Cullercoats.

The chapel contains some interesting plaster-work executed by Mr. G. P. Bankhart.

The quantities were prepared by Messrs. J. P. Allan & Partners, Newcastle-on-Tyne.

## THE FOUNTAIN-HEAD OF EUROPEAN CIVILISATION.\*

(Continued from last week.)

SUCH was the level of artistic attainment in South-Western Europe, at a modest estimate some ten thousand years earlier than the most ancient monuments of Egypt or Chaldæa! Nor is this an isolated phenomenon. One by one, characteristics, both spiritual and material, that had been formerly thought to be the special marks of later ages of mankind have been shown to go back to that earlier World. I myself can never forget the impression produced on me as a privileged spectator of a freshly uncovered interment in one of the Balzi Rossi Caves—an impression subsequently confirmed by other experiences of similar discoveries in these caves, which together first supplied the concordant testimony of an elaborate cult of the dead on the part of Aurignacian Man. Tall skeletons of the highly-developed Cro-Magnon type lay beside or above their hearths, and protected by great stones from roving beasts. Flint knives and bone javelins had been placed within reach of their hands, chaplets and necklaces of sea-shells, fish-vertebrae, and studs of carved bone had decked their persons. With these had been set lumps of iron peroxide, the red stains of which appeared on skulls and bones, so that they might make a fitting show in the Under-world.

"Colours, too, to paint his body,  
Place within his hand,  
That he glisten, bright and ruddy,  
In the Spirit-Land!"†

Nor is it only in this cult of the departed that we trace the dawn of religious practices in that older World. At Cogul we may now survey the ritual dance of nine skirted women round a male Satyr-like figure of short stature, while at Alpera a gowned sister minstrel holds up what has all the appearance of being a small idol. It can hardly be doubted that the small female images of ivory, steatite, and crystalline talc from the same

Aurignacian stratum as that of the Balzi Rossi interments, in which great prominence is given to the organs of maternity, had some fetishistic intention. So, too, many of the figures of animals engraved and painted on the inmost vaults of the caves may well have been due, as M. Salomon Reinach has suggested, to the magical ideas prompted by the desire to obtain a hold on the quarries of the chase that supplied the means of livelihood.

In a similar religious connexion may be taken the growth of a whole family of signs, in some cases obviously derivatives of fuller pictorial originals, but not infrequently simplified to such a degree that they resemble or actually reproduce letters of the alphabet. Often they occur in groups like regular inscriptions, and it is not surprising that in some quarters they should have been regarded as evidence that the art of writing had already been evolved by the men of the Reindeer Age. A symbolic value certainly is to be attributed to these signs, and it must at least be admitted that by the close of the late Quaternary Age considerable advance had been made in hieroglyphic expression.

The evidences of more or less continuous civilised development reaching its apogee about the close of the Magdalenian Period have been constantly emerging from recent discoveries. The recurring "tectiform" sign had already clearly pointed to the existence of huts or wigwams; the "scutiform" and other types record appliances yet to be elucidated, and another sign well illustrated on a bone pendant from the Cave of St. Marcel has an unmistakable resemblance to a sledge.\* But the most astonishing revelation of the cultural level already reached by primeval man has been supplied by the more recently discovered rock paintings of Spain. The area of discovery has now been extended there from the Province of Santander, where Altamira itself is situated, to the Valley of the Ebro, the Central Sierras, and to the extreme South-Eastern region, including the Provinces of Albacete, Murcia, and Almeria, and even to within the borders of Granada.

One after another, features that had been reckoned as the exclusive property of Neolithic or later Ages are thus seen to have been shared by Palæolithic Man in the final stage of his evolution. For the first time, moreover, we find the productions of his art rich in human subjects. At Cogul the sacral dance is performed by women clad from the waist downwards in well-cut gowns, while in a rock-shelter of Alpera,† where we meet with the same skirted ladies, their dress is supplemented by flying sashes. On the rock painting of the Cueva de la Vieja, near the same place, women are seen with still longer gowns rising to their bosoms. We are already a long way from Eve!

It is this great Alpera fresco which, among all those discovered, has afforded most new elements. Here are depicted whole scenes of the chase in which bow-men—up to the time of these last discoveries unknown among Palæolithic representations—take a leading part, though they had not as yet the use of quivers. Some are dancing in the attitude of the Australian Corroborees. Several wear plumed headdresses, and the attitudes at times are extraordinarily animated. What is specially remarkable is that some of the groups of these Spanish rock paintings show dogs or jackals accompanying the hunters, so that the process of domesticating animals had already begun. Hafted axes are depicted as well as cunningly-shaped throwing-sticks. In one case at least we see two opposed bands of archers—marking at any rate a stage in social development in which organised warfare was possible—the beginnings, it is to be feared, of "kultur" as well as of culture!

Nor can there be any question as to the age of these

\* Presidential Address by Sir Arthur Evans, D.Litt., LL.D., P.S.A., F.R.S., Extraordinary Professor of Prehistoric Archaeology, Oxford; Correspondant de l'Institut de France, &c., at the Newcastle-on-Tyne, 1916, Meeting of the British Association for the Advancement of Science.

† Schiller, "Nadwessier's Todtenlied."

\* This interpretation suggested by me after inspecting the object in 1902 has been approved by the Abbé Breuil ("Anthropologie," XIII., p. 152) and by Prof. Sollas, "Ancient Hunters," 1915, p. 480.

† That of Carasoles del Bosque; Breuil, "Anthropologie," XXVI., 1915, p. 329 seqq.



scenes and figures, by themselves so suggestive of a much later phase of human history. They are inseparable from other elements of the same group, the animal and symbolic representations of which are shared by the contemporary school of rock-painting north of the Pyrenees. Some are overlaid by palimpsests, themselves of Palaeolithic character. Among the animals actually depicted, moreover, the elk and bison distinctly belong to the Late Quaternary fauna of both regions, and are unknown there to the Neolithic deposits.

In its broader aspects this field of human culture, to which, on the European side, the name of Reindeer Age may still on the whole be applied, is now seen to have been very widespread. In Europe itself it permeates a large area—defined by the boundaries of glaciation—from Poland, and even a large Russian tract, to Bohemia, the upper course of the Danube and of the Rhine, to South-Western Britain and South-Eastern Spain. Beyond the Mediterranean, moreover, it fits on under varying conditions to a parallel form of culture, the remains of which are by no means confined to the Cis-Salieran zone, where incised figures occur of animals like the long-horned buffalo (*Bubalus antiquus*) and others long extinct in that region. This Southern branch may eventually be found to have a large extension. The nearest parallels to the finer class of rock-carving as seen in the Dordogne are, in fact, to be found among the more ancient specimens of similar work in South Africa, while the rock-paintings of Spain find their best analogies among the Bushmen.

Glancing at this Late Quaternary culture as a whole, in view of the materials supplied on the European side, it will not be superfluous for me to call attention to two important points which some observers have shown a tendency to pass over.

Its successive phases, the Aurignacian, the Solutrean, and the Magdalenian, with its decadent Azilian offshoot—the order of which may now be regarded as stratigraphically established—represent on the whole a continuous story.

I will not here discuss the question as to how far the disappearance of Neanderthal Man and the close of the Mousterian epoch represents a "fault" or gap. But the view that there was any real break in the course of the cultural history of the Reindeer Age itself does not seem to have sufficient warrant.

It is true that new elements came in from more than one direction. On the old Aurignacian area, which had a trans-Mediterranean extension from Syria to Morocco, there intruded on the European side—apparently from the East—the Solutrean type of culture, with its perfected flint-working and exquisite laurel-leaf points. Magdalenian Man, on the other hand, great as the proficiency that he attained in the carving of horn and bone, was much behind in his flint-knapping. That there were dislocations and temporary set-backs is evident. But on every side we still note transitions and reminiscences. When, moreover, we turn to the most striking features of this whole cultural phase, the primeval arts of sculpture, engraving, and painting, we see a gradual upgrowth and unbroken tradition. From mere outline figures and simple two-legged profiles of animals we are led on step by step to the full freedom of the Magdalenian artists. From isolated or disconnected subjects we watch the advance to large composition, such as the hunting scenes on the Spanish rock-paintings. In the culminating phase of this art we even find impressionist works. A brilliant illustration of such is seen in the galloping herds of horses, lightly sketched by the engraver on the stone slab from the Chaumont Grotto, depicting the leader in each case in front of his troop, and its serried line—straight as that of a well-drilled battalion—in perspective rendering. The whole must be taken to be a faithful memory sketch of an exciting episode of prairie life.

The other characteristic feature of the culture of the Reindeer Age that seems to deserve special emphasis, and is almost the corollary of the foregoing, is that it

cannot be regarded as the property of a single race. It is true that the finely built Cro-Magnon race seems to have predominated, and must be regarded as an element of continuity throughout, but the evidence of the co-existence of other human types is clear. Of the physical characteristics of these it is not my province to speak. Here it will be sufficient to point out that their interments, as well as their general associations, conclusively show that they shared, even in its details, the common culture of the age, followed the same fashions, plied the same arts, and were imbued with the same beliefs as the Cro-Magnon folk. The negroid skeletons intercalated in the interesting succession of hearths and interments of the Grotte des Enfants at Grimaldi had been buried with the same rites, decked with the same shell ornaments, and were supplied with the same red colouring matter for use in the Spirit World, as we find in the other sepultures of these caves belonging to the Cro-Magnon race. Similar burial rites were associated in this country with the "Red Lady of Paviland," the contemporary Aurignacian date of which is now well established. A like identity of funeral custom recurred again in the sepulture of a man of the "Brünn" race on the Eastern boundary of this field of culture.

In other words, the conditions prevailing were analogous to those of modern Europe. Cultural features of the same general character had imposed themselves on a heterogeneous population. That there was a considerable amount of circulation, indeed—if not of primitive commerce—among the peoples of the Reindeer Age is shown by the diffusion of shell or fossil ornaments derived from the Atlantic, the Mediterranean, or from inland geological strata. Art itself is less the property of one or another race than has sometimes been imagined—indeed, if we compare those products of the modern carver's art that have most analogy with the horn and bone carvings of the Cave Men and rise at times to great excellence—as we see them, for instance, in Switzerland or Norway—they are often the work of races of very different physical types. The negroid contributions, at least in the Southern zone of this Late Quaternary field, must not be underestimated. The early steatopygous images—such as some of these of the Balzi Rossi caves—may safely be regarded as due to this ethnic type, which is also pictorially represented in some of the Spanish rock-paintings.

The nascent flame of primeval culture was thus already kindled in that Older World, and, so far as our present knowledge goes, it was in the South-Western part of our Continent, on either side of the Pyrenees, that it shone its brightest. After the great strides in human progress already made at that remote epoch, it is hard, indeed, to understand what it was that still delayed the rise of European civilisation in its higher shape. Yet it had to wait for its fulfilment through many millennia. The gathering shadows thickened and the darkness of a long night fell not on that favoured region alone, but throughout the wide area where Reindeer Man had ranged. Still the question rises—as yet imperfectly answered—were there no relay runners to pass on elsewhere the lighted torch?

Something, indeed, has been recently done towards bridging over the "hiatus" that formerly separated the Neolithic from the Palaeolithic Age—the yawning gulf between two Worlds of human existence. The Azilian—a later decadent outgrowth of the preceding culture—which is now seen partially to fill the lacuna, seems to be in some respects an impoverished survival of the Aurignacian.\* The existence of this phase was first established by the long and patient investigations of Piette in the stratified deposits of the Cave of Mas d'Azil in the Ariège, from which it derives its name, and it has been proved by recent discoveries to have had a wide extension. It affords evidence of a milder and moister climate—well illustrated by the abundance of the little wood snail (*Helix*

\* Breuil, "Congr. Préhist." Geneva, 1912, p. 216.

*nemoralis*) and the increasing tendency of the Reindeer to die out in the Southern parts of the area, so that in the fabric of the characteristic harpoons deer-horns are used as substitutes. Artistic designs now fail us, but the polychrome technique of the preceding Age still survives in certain schematic and geometric figures, and in curious coloured signs on pebbles. These last first came to light in the Cave of Mas d'Azil, but they have now been found to recur much further afield in a similar association in grottoes from the neighbourhood of Basel to that of Salamanca. So like letters are some of these signs that the lively imagination of Piette saw in them the actual characters of a primeval alphabet!

The little flakes with a worked edge often known as "pygmy flints," which were most of them designed for insertion into bone or horn harpoons, like some Neolithic examples, are very characteristic of this stratum, which is widely diffused in France and elsewhere under the misleading name of "Tardenoisian." At Ofnet, in Bavaria, it is associated with a ceremonial skull burial showing the coexistence at that spot of brachycephalic and dolichocephalic types, both of a new character. In Britain, as we know, this Azilian, or a closely allied phase, is traceable as far north as the Oban Caves.

What, however, is of special interest is the existence of a northern parallel to this cultural phase, first ascertained by the Danish investigator, Dr. Sarauw, in the Lake station of Maglemose, near the west coast of Zealand. Here bone harpoons of the Azilian type occur, with bone and horn implements showing geometrical and rude animal engravings of a character divergent from the Magdalenian tradition. The settlement took place when what is now the Baltic was still the great "Ancylus Lake," and the waters of the North Sea had not yet burst into it. It belongs to the period of the Danish pine and birch woods, and is shown to be anterior to the earliest shell mounds of the Kitchen-midden People, when the pine and the birch had given place to the oak. Similar deposits extend to Sweden and Norway, and to the Baltic Provinces as far as the Gulf of Finland. The parallel relationship of this culture is clear, and its remains are often accompanied with the characteristic "pygmy" flints. Breuil, however,\* while admitting the late Palæolithic character of this northern branch, would bring it into relation with a vast Siberian and Altaic province, distinguished by a widespread existence of rock-carvings of animals. It is interesting to note that a rock-engraving of a reindeer, very well stylised, from the Trondhjem Fjord, which has been referred to the Maglemosian phase, preserves the simple profile rendering—two legs only being visible—of Early Aurignacian tradition.

It is worth noting that an art affiliated to that of the petroglyphs of the old Altaic region long survived in the figures of the Lapp troll-drums, and still occasionally lingers, as I have myself had occasion to observe, on the reindeer-horn spoons of the Finnish and Russian Lapps, whose ethnic relationship, moreover, points east of the Ural. The existence of a Late Palæolithic Province on the Russian side is in any case now well recognised and itself supports the idea of a later shifting north and north-east, just as at a former period it had oscillated in a South-Western direction. All this must be regarded as corroborating the view long ago expressed by Boyd Dawkins † that some part of the old Cave race may still be represented by the modern Eskimos. Testut's comparison of the short-statured Magdalenian skeleton from the rock shelter of Chancelade in the Dordogne with that of an Eskimo certainly confirms this conclusion.

On the other hand, the evidence, already referred to, of an extension of the Late Palæolithic culture to a North African zone, including rock-sculptures depicting a series of animals extinct there in the later Age, may be taken to favour the idea of a partial continuation on

that side. Some of the early rock-sculptures in the south of the continent, such as the figure of a walking elephant reproduced by Dr. Peringuey, afford the clearest existing parallels to the best Magdalenian examples. There is much, indeed, to be said for the view, of which Sollas is an exponent, that the Bushmen, who at a more recent date entered that region from the North, and whose rock-painting attained such a high level of naturalist art, may themselves be taken as later representatives of the same tradition. In their human figures the resemblances descend even to conventional details, such as we meet with at Cogul and Alpera. Once more, we must never lose sight of the fact that from the Early Aurignacian Period onwards a negroid element in the broadest sense of the word shared in this artistic culture as seen on both sides of the Pyrenees.

At least we now know that Cave Man did not suffer any sudden extinction, though on the European side, partly, perhaps, owing to the new climatic conditions, this culture underwent a marked degeneration. It may well be that, as the osteological evidence seems to imply, some outgrowth of the old Cro-Magnon type actually perpetuated itself in the Dordogne. We have certainly lengthened our knowledge of the Palæolithic. But in the present state of the evidence it seems better to subscribe to Cartailhac's view that its junction with the Neolithic has not yet been reached. There does not seem to be any real continuity between the culture revealed at Maglemose and that of the immediately superposed Early Neolithic stratum of the shell-mounds, which, moreover, as has been already said, evidence a change both in climatic and geological conditions, implying a considerable interval of time.

It is a commonplace of Archaeology that the culture of the Neolithic peoples throughout a large part of Central, Northern, and Western Europe—like the newly domesticated species possessed by them—is Eurasiatic in type. So, too, in Southern Greece and the Ægean World we meet with a form of Neolithic culture which must be essentially regarded as a prolongation of that of Asia Minor.

It is clear that it is on this Neolithic foundation that our later civilisation immediately stands. But in the constant chain of actions and reactions by which the history of mankind is bound together—short of the extinction of all concerned, a hypothesis in this case excluded—it is equally certain that no great human achievement is without its continuous effect. The more we realise the substantial amount of progress of the men of the Late Quaternary Age in arts and crafts and ideas, the more difficult it is to avoid the conclusion that somewhere "at the back of behind"—it may be by more than one route and on more than one continent, in Asia as well as Africa—actual links of connection may eventually come to light.

Of the origins of our complex European culture this much at least can be confidently stated: the earliest extraneous sources on which it drew lay respectively in two directions—in the Valley of the Nile on one side and in that of the Euphrates on the other.

Of the high early culture in the lower Euphrates Valley our first real knowledge has been due to the excavations of De Sarzec in the Mounds of Tello, the ancient Lagash. It is now seen that the civilisation that we call Babylonian, and which was hitherto known under its Semitic guise, was really in its main features an inheritance from the earlier Sumerian race—culture in this case once more dominating nationality. Even the laws which Hammurabi traditionally received from the Babylonian Sun God were largely modelled on the reforms enacted a thousand years earlier by his predecessor, Urukagina, and ascribed by him to the inspiration of the City God of Lagash.\* It is hardly necessary to insist on the later indebtedness of our civilisation to this culture in its Semitised shape, as passed on,

\* "Les subdivisions du paléolithique supérieur et leur signification."—"Congrès intern. d'Anthrop. et d'Archéol. préhist." XIV<sup>me</sup> Sess., Genève, 1912, pp. 165, 238.

† "Early Man in Britain," 1880, p. 233 *seqq.*

\* See L. W. King, "History of Sumer and Akkad," p. 184.

together with other more purely Semitic elements, to the Mediterranean World through Syria, Canaan, and Phœnicia, or by way of Assyria, and by means of the increasing hold gained on the old Hittite region of Anatolia.

Even beyond the ancient Mesopotamian region which was the focus of these influences, the researches of De Morgan, Gautier, and Lampre, of the French "Délégation en Perse," have opened up another independent field, revealing a nascent civilisation equally ancient, of which Elam—the later Susiana—was the centre. Still further afield, moreover—some three hundred miles east of the Caspian—the interesting investigations of the Pumpelly Expedition in the mounds of Anau, near Ashkabad in Southern Turkestan, have brought to light a parallel and related culture. The painted Neolithic sherds of Anau, with their geometrical decoration, similar to contemporary ware of Elam, have suggested wide comparisons with the painted pottery of somewhat later date found in Cappadocia and other parts of Anatolia, as well as in the North Syrian regions. It has, moreover, been reasonably asked whether another class of painted Neolithic fabrics, the traces of which extend across the Steppes of Southern Russia, and, by way of that ancient zone of migration, to the lower Danube and Northern Greece, may not stand in some original relation to the same ancient Province. The new discoveries, however, in the mounds of Elam and Anau have at most a bearing on the primitive phase of culture in parts of South-Eastern Europe that preceded the age when metal was generally in use.

Turning to the Nile Valley, we are again confronted with an extraordinary revolution in the whole point of view affected during recent years. Thanks mainly to the methodical researches initiated by Flinders Petrie, we are able to look back beyond the Dynasties to the very beginnings of Egyptian civilisation. Already by the closing phase of the Neolithic and by the days of the first incipient use of metals the indigenous population had attained an extraordinarily high level. If on the one hand it displays Libyan connections, on the other we already note the evidences of commercial intercourse with the Red Sea; and the constant appearance of large rowing vessels in the figured designs shows that the Nile itself was extensively used for navigation. Flint-working was carried to unrivalled perfection, and special artistic refinement was displayed in the manufacture of vessels of variegated breccia and other stones. The antecedent stages of many Egyptian hieroglyphs are already traceable, and the cult of Egyptian divinities, like Min, was already practised. Whatever ethnic change may have marked the establishment of Pharaonic rule, here, too, the salient features of the old indigenous culture were taken over by the new régime. This early Dynastic period itself has also received entirely new illustration from the same researches, and the freshness and force of its artistic works in many respects outshine anything produced in the later course of Egyptian history.

(To be continued.)

#### NOTES ON BOOKS.

"A Guide to Gothic Architecture." By T. Francis Bumpus, author of "The Cathedrals of England," &c. With one hundred and forty-three illustrations. (London: T. Werner Laurie, Ltd. 10s. 6d. net.)

We can scarcely regard as complete a "Guide to Gothic Architecture" which only devotes less than a couple of pages to what the author admits as "the full-grown 'complete Gothic' of the Perpendicular, that style which is the outcome of our insularity—the English of the English," and we hope that Mr. Bumpus may realise his hope in a future volume to do "full justice to this latest phase of English Gothic architecture." As far as the present work extends—that is, through the Anglo-Norman and Transitional, the Early English and the Decorated styles—we find a thoroughly admirable guide to an intelli-

gent understanding of Gothic architecture. Although based primarily on the development of Gothic architecture in England, and following the traditional recognition of phases or periods, the author's explanation of his subject embraces comparison with Continental modes and adduces a very wide range of examples that proves an extensive acquaintance with the ecclesiastical architecture of the mainland, more particularly in France and Germany. Whilst valuable to the professional student, this work by Mr. Bumpus is eminently suited to the needs of the amateur of Gothic architecture who desires to realise wherein lies the rationale of the effects that he admires in Gothic architecture. Especially commendable is the chapter containing an historical sketch of the fabric of the church and the form thereof. There is little in the book with which we are inclined to disagree, but we must join issue with the author's statement in his introductory sketch that "all proportions are naturally of equal beauty" as long as they do not suggest weakness and frailty in one direction or superabundant strength of construction in the opposite. The numerous illustrations with which the volume is adorned are well chosen and excellently produced, though their small scale and photographic method are more in accord with the requirements of the amateur than of the professional student.

"Drawing and Design for Craftsmen." By R. S. Bowers.

With about 770 illustrations by the author and at least thirty other artists. (London: Cassell & Co., Ltd. 6s. net.)

Whilst it may be objected by some that to teach drawing through the medium of books only is impossible, it must be recognised that the attempt has been made by very many authors, from John Ruskin downwards, and although it is certain that no one can become a draughtsman, still less an artist, simply by reading a book, there can be no doubt that a great deal of instruction and assistance can be afforded to an aspirant by an author who is capable. In the case of the book before us there is no question of the capability of the author, who has produced a volume that is infinitely superior to the great majority of those intended for the instruction of practical craftsmen. What we especially admire is the modernity and artistic character of the examples set before the reader as models and illustrations. Thus in architectural drawing the method of "crossed corners" is adopted; in perspectives the centre of vision is, as now adopted by all our best draughtsmen in the middle vertical line of the picture plane, not opposite the nearest angle as has previously been usual in books on perspective drawing. The use of inclined vanishing points is also explained, a point too often admitted. It is a pity in this connection that the author did not find space for a description of the use of centroliniads in cases where vanishing points are beyond the limits of the drawing board. There is little in the range of drawing for craftsmen, not excluding water-colour painting and figure drawing, of which at least the primæ are not treated by the author in a way thoroughly efficient in setting the craftsman on the right road to become a capable draughtsman, and we can confidently recommend the book as invaluable to architectural students in particular.

"Furniture Making. Designs, Working Drawings, and Complete Details of 170 Pieces of Furniture, with practical information on their construction." By R. S. Bowers, John Bovingdon, and other designer-craftsmen. With 1,082 illustrations. (London: Cassell & Co., Ltd. 5s. net.)

Inasmuch as the "Designs" are a prominent feature in the scheme of this book, it is satisfactory to find that the designs supplied are, when illustrative of old work, wisely chosen, and, when modern, refined, sensible, and in good taste, so that there is no fear that the amateur or professional maker of furniture will, by adopting the examples here given, be led into the perpetration of atrocities. The working and detail drawings are clear and

explicit, so that anyone with a knowledge of the use of wood-working tools can produce the 170 pieces of furniture delineated. There is an absence of highly involved and intricate specimens which would be beyond the powers of any but the most expert workman. The amateur even may venture to attempt, with a fair prospect of success, veneered work and inlay with the instructions furnished.

"The Architects' and Builders' Pocket-Book." A handbook for architects, structural engineers, builders, and draughtsmen. By the late Frank E. Kidder, C.E., Ph.D., author of "Building Construction and Superintendence." Compiled by a staff of specialists. Thomas Nolan, editor-in-chief, Fellow of the American Institute of Architects, Professor of Architectural Construction, University of Pennsylvania. Sixteenth edition, rewritten. Total issue, fifty-seven thousand. (New York: John Wiley & Sons. London: Chapman & Hall, Limited. 21s. net.)

A standard book of reference which has been so well received as to have reached its sixteenth edition carries on the face its own certificate of usefulness and reliability. No longer suitable to any ordinary pocket, this work now is sufficiently bulky for a handbook, but to comprise the necessary instruction in construction required by modern architects and builders such bulkiness is inevitable. The re-writing has enabled the staff of specialists to bring up to date the information included on modern steelwork and reinforced concrete, as well as the many other structural devices used in modern building. Although the methods and materials on which the volume is based are chiefly those of American practice, its usefulness on this side of the Atlantic is of a very high order, and there is scarcely any problem in construction which the architect and builder, whether young or old, will not find elucidated.

"The Practical Electrician's Pocket-book for 1916." Edited by H. T. Crewe, M.I.Mech.E., with the assistance of many kindly contributors. (London: S. Rentall & Co., Ltd. 1s. net.)

Electricity is one of those many new scientific departments of knowledge of which some acquaintance is absolutely necessary to the modern architect, and in this little pocket-book will be found a mine of information that will enable him to meet on satisfactory terms with those specialists whose services are to be utilised in his buildings. Starting from boilers and other primary generators, we are led through the various applications of electricity which play so large a part in our present-day life, so that both the practical operative in electric engineering and the architect who has to arrange and supervise his operations obtain in this most useful handbook the information most necessary to their particular requirements.

## THE CORRECTION OF ECHOES AND REVERBERATION IN THE AUDITORIUM AT THE UNIVERSITY OF ILLINOIS.\*

### I. PRELIMINARY.

The interior of the Auditorium under investigation approximates a sphere cut off on the lower surface by the sloping floor of the room. There is a balcony, but no gallery. The balcony projects 12 feet over the main floor at the sides and 34 feet in the rear. The stage is built out into the room instead of being set back behind a proscenium arch as originally designed, the stage house having been omitted to reduce the cost of the building.

The domed ceiling is supported on four equal arches, and the side walls above the gallery are double curved surfaces. The limited appropriation for the building

made it impossible to embellish the surfaces of the walls and ceiling, and therefore they were left practically plain, which increased their power to reflect sound and cause echoes. There are no windows in the room, the daylight lighting being exclusively through a ceiling light 30 feet in diameter in the centre of the dome.

An experimental diagnosis of the acoustical properties of the Auditorium was made. This was done by tracing the path pursued by a small bundle of sound when it was sent in a definite direction and noting what became of it after reflection. Several methods of tracing sound were tried before a suitable one was found. A ticking watch backed by a reflector, or a metronome enclosed in a box having a directed horn gave definite data. However, a hissing arc light with a parabolic reflector was much more satisfactory and gave conclusive results. Enough data were secured in this way to show the general behaviour of the sound in the room and also to indicate how the chief echoes were set up. Attempts were then made to secure satisfactory acoustics by hanging curtains and draperies at critical points suggested by the diagnosis. This result was finally secured by suspending four large pieces of canvas in the dome.

From the acoustical standpoint the Auditorium was then in a much improved condition. The canvas, however, was very unsightly and did not accord with the architectural features of the room. It was therefore proposed that the materials used to correct the acoustics be installed in such manner to remedy this fault. It was also proposed at this time to install a pipe organ, to decorate the interior of the room, and to change the lighting system.

### II. PRELIMINARY ACOUSTICAL INVESTIGATION.

It was desired that the materials used to correct the acoustics be installed in such manner as to conform with the architectural features of the Auditorium. This introduced a new problem since in the provisional cure the canvas sheets in the dome hung with very little conformity to the curvature of the walls. A further complication appeared when it was found by calculation that the amount of material necessary to correct the reverberation was insufficient to pad all the walls that produced echoes. It was desirable to eliminate the echoes, but it was regarded as risky to instal too much sound-absorbing material, owing to the danger of making the Auditorium too dead for sound.

Because of these difficulties it was decided to carry on further experiments and to secure more data before deciding on the final cure. Accordingly, one large curved wall was covered with strips of one-inch hair felt, 30 inches wide, placed vertically and 30 inches apart so as to leave bare spaces between them. This arrangement was satisfactory for many reasons; it did not change the curvature of the wall; it used only half the amount of material necessary to cover the entire wall; and because of diffraction and interference effects, it was theoretically more efficient in breaking up the reflected sound than if the same material were spread continuously over the whole surface. Although encouraging, the results were not so marked as expected in diminishing the echoes.

On the basis of this experiment, plans were made for covering other walls in a similar way, except that the hair felt was to be mounted on wooden ribs built out from the wall surface. Such an installation seemed more likely to break up the incident sound than the first plan of mounting the hair felt snugly against the wall. The sound wave on striking these outer strips would suffer partial reflection and change of phase, while the remaining portion of the sound would pass through the open spaces and be spread out by diffraction and reflection from the walls. The hair felt strips would oppose the incident and reflected waves, thus breaking up the original sound and diminishing its intensity and possibility of producing echoes.

\* Abstract from Bulletin No. 87 of the Engineering Experiment Station, University of Illinois, U.S.A. (obtainable from Messrs. Chapman & Hall, Ltd., London).



Because the scaffolding erected for the use of the workmen interfered with the passage of sound waves, the efficiency of this method of placing the felt could not be tested step by step as the material was mounted. The test was deferred, therefore, until the installation was completed. In the meantime the pipe organ was installed, the interior was redecorated, and the lighting system changed, so that only the combined effect of all these factors on the acoustics could be investigated.

### III. INSTALLATION OF THE PIPE ORGAN.

The organ was mounted in a unique way by dividing it into two parts and placing them in lofts 24 feet above the ends of the stage with a distance of 75 feet between centres. This arrangement placed the organ at a considerable distance above the audience. The absence of any vertical surface between the lofts and the audience room prevented any visible arrangement of the organ pipes, but the necessary free exit of the sound was provided for by the construction of ornamental plaster grills covering the pendentives on either side of the stage.

### IV. FINAL ACOUSTICAL INVESTIGATION.

The remodelled Auditorium has been tested under varied conditions for music and speaking, and popular opinion has pronounced the acoustics satisfactory. A speaker with a moderate voice can be heard distinctly by auditors in the most distant seats. The music of the new pipe organ, according to experts, is satisfactorily rendered. The room is also suited for orchestra music, though for this case it has been found advantageous to follow the usual custom of leaving the wooden floor of the stage bare of carpet so as to reinforce the sound from the instruments.

While the Auditorium has proved to be generally satisfactory, a detailed investigation of the acoustical effects secured by the modification of the room was thought desirable. A request was made, accordingly, that auditors report any echoes or acoustical disturbances however slight they might be. About a dozen replies were received, and on the basis of these and other considerations, a systematic investigation was undertaken.

The acoustical results, beneficial and otherwise, may be anticipated by considering the changes made. According to Sabine, the hair felt installed would reduce the reverberation. This would also eliminate echoes if installed on certain surfaces in accordance with the analysis; but, since the amount of material used to correct the reverberation was insufficient to cover all the walls, acoustical defects might still be set up by the unpadded surfaces, especially by the pendentives. The pipe organ, by generating musical sounds that emerged through the pendentives in the dome, might introduce new acoustical disturbances. The openings made in the surfaces of two of the pendentives for the passage of the organ music would reduce the general reverberation and would also diminish the echoes. The changes in the decoration and in the lighting system would produce little effect.

### V. INVESTIGATION OF ECHOES.

Tests were made in several ways to determine the presence of echoes. The opinion offered by auditors that the echoes had generally disappeared was, of course, the most satisfactory evidence. One test was made by talking through a megaphone toward different walls. The sound was generated inside a small house and its direction of propagation controlled by two megaphones, one being pointed toward an observer and the other toward a wall which previously gave echoes. No distinct echo could be obtained by speaking simultaneously into the two megaphones. The ticks of a metronome produced very little additional effect, but when a sharp intense metallic sound was tried, echoes were obtained from the unpadded walls but only faint responses from the padded walls. The intense hissing sound of an arc light backed by a parabolic reflector gave more pronounced results. It

showed that the padded walls produced a marked effect in reducing the intensity of the sound.

The effect of the unpadded pendentives in the rear dome surface is that the echoes reported by auditors, so far as could be ascertained, came from these two walls. An echo was perceptible when the speaker faced directly toward one of these pendentives so that the profile of his face was seen by an auditor seated at one side of the auditorium. The direct sound coming to the auditor was then diminished while the reflected sound was augmented, thus producing an echo. Other unpadded walls, notably the side walls under the balcony, still set up concentrations of sound.

### VI. DISCUSSION AND CONCLUSIONS.

The Auditorium fulfilled the theory held many years ago by Lord Rayleigh that a large room with hard, non-porous walls and with few windows has a prolonged resonance, and that the best chance of improvement lies in padding the walls and ceiling with sound-absorbing materials. Thus, the installation of hair felt in the Auditorium reduced the reverberation; the amount of reduction being calculated in advance by Sabine's formula and constants of absorption.

The amount of hair felt necessary to correct the reverberation was insufficient to cover all the walls, and it was found that some of these unpadded surfaces still produced echoes. This action was anticipated in part from the general considerations discussed by Rayleigh, in which the possibility of reflection of sound was shown to depend on the positions of the source and receiver of sound, and also upon the size and form of the wall compared with the wave length of the incident sound.

The installation in an auditorium of considerable sound absorbing material eliminates the objectional condition of satisfactory reverberation being wholly dependent on the sound-absorbing power furnished by an audience. This means that rehearsals without an audience can be conducted satisfactorily, and that a speaker addressing a small audience is not obliged to contend with a distressing reverberation.

The theoretical advantages in absorbing and breaking up sound waves when hair felt is mounted out from a wall instead of placed snugly against the surface do not appear to be so great as expected. Observers listened to sounds reflected from both types of surface, and concluded that a surface having hair felt mounted out from the wall was more efficient. The conclusions, however, should be checked by quantitative, instrumental measurements since the ear is inaccurate in its estimation of the comparative intensities of different sounds. It appears that the felt is more effective when mounted out from the wall, but there is some question whether or not the advantages secured justify the additional expense of installation and the greater risk of fire.

The music of the pipe organ emerging in large volume from the pendentives in the dome introduced concentrations of sound different from those set up when the source of sound was on the stage. This made it desirable to pad other walls in addition to those requiring padding for the single source of sound.

The effect of the organ music confirmed one conclusion set forth by Jäger; namely, that the strength of the source of sound for good acoustics should be in correct proportion to the volume of the room. It appears that the Auditorium is too small for loud organ music since the sound in this case becomes unpleasantly intense. On the other hand, it appears that the volume is fairly well suited for softer organ music and for a weak source of sound, such as a speaker with a moderate voice. In this connection Jäger contends that an auditorium is limited to its acoustical possibilities; that if a room is too large, it is impossible to make it satisfactory for weak sources of sound. He points out also that the problem of correcting faulty acoustics must include a consideration of intensity of sound as well as of reverberation; that is, the variable factors at command, the

volume and absorbing power of the room and the source of sound, must be so proportioned as to give not only a suitable reverberation but also an acceptable intensity of sound. He discusses the limitations in obtaining this desired result.

Another deduction made by Jäger which applies rather directly to the Auditorium is that the ratio  $S/W$  should be large for good acoustics, in which  $S$  is the total surface of walls, furniture, and fixtures struck by the sound and  $W$  is the volume of the interior. Theoretically, this ratio is smallest for a sphere, and, since the Auditorium approximates a hemisphere, the excessive reverberation might have been predicted.

Reverberations and echoes were corrected simultaneously by installing a suitable amount of hair felt on the walls which produced echoes. To locate these walls, a new method was developed in which the source of sound was an arc light as explained earlier in this bulletin.

The investigation showed that curved walls are worse acoustically than plane walls since they produce undesirable concentrations of sound and echoes. It also appears that the openings in the pendentives for the organ music and the ventilation openings act similarly to open windows, and thus reduce reverberations and diminish echoes.

One acoustical disturbance which was not corrected was that due to talking and walking in the foyer and on the stairs immediately outside the Auditorium. The sounds of footsteps and the reverberation caused by loud talking and the accidental noises in the foyer could be reduced by covering the stairs and foyer with a yielding material, such as cork, and by padding some of the walls.

It is apparent from this discussion that the means employed to correct the acoustics, as exemplified by this complex problem, were based upon established scientific principles, and this investigation and others of like nature have served, to a large extent, to dispel the mystery surrounding the action of sound in auditoriums.

## THE ARCHITECTURE OF LONDON HIGHWAYS.

By VIATOR.

### CHARING CROSS TO VICTORIA.

THERE are two main routes by which this journey can be compassed; either by way of the Admiralty Arch, the Mall and Buckingham Palace Road, or (alternatively) by way of Whitehall and Victoria Street. There is, in fact, another alternative route which would be more architecturally interesting than proceeding via the Mall, and that would be by way of the Arch, St. James's Park (taking the Government Offices and Horse Guards Parade in the rear) and Birdcage Walk to Buckingham Palace Road.

The Admiralty Arch forms the eastern approach to the Memorial to our great Queen, Victoria the Good, whose memory will be green as long as our Empire shall hold sway. Sir Aston Webb and Sir Thomas Brock were collaborators in the scheme, which has been brought to such a successful issue. There are those who regret the transformation of the Mall itself; but it is inconceivable that any regret can be experienced at the erection of the Arch and the memorial groups and the re-vestiture of the Palace. For the gate piers to the encircling roadways Sir Aston Webb is said to have borrowed ideas from a scheme of Sir John Soane's, when there was a suggestion to build Buckingham Palace at the commencement of the nineteenth century. But however this may be, the architect and the sculptor have certainly laid their own imprint upon their respective work; a more impressive, a nobler statue of our lamented Queen cannot be imagined, and the whole of this central pile is in every respect well proportioned, well designed, and well executed. The Palace as re-fronted is a vast improvement on the previous poverty-stricken façade, but it is, at the best, a makeshift. The Arch is again finely conceived and

executed, and only awaits full justice being accorded when the approach from Charing Cross shall be worthily accomplished. Sir Aston Webb's personality is peculiarly noticeable in this structure; the one improvement would have been by coupling the columns between the arches, the present arrangement looking weak.

Sir John Soane, Sir Digby Wyatt, Sir Charles Barry, Sir Gilbert Scott, J. M. Brydon, William Young, Clyde Young, and Sir Henry Tanner—all these are responsible for one portion or another, one block or another of the more modern-looking blocks of Government offices. Messrs. Brydon and William Young died before the work which they had won in competition could be well set in hand; but whilst Mr. Clyde Young has made a most successful block for the War Office, the Office of Works under the guidance of Sir Henry Tanner cannot be equally commended for the Local Government Board block which Mr. Brydon did not live to carry out. That portion of the block which faces the Park and which is allocated to the Office of Works has a happy feature in the north and south quadrant-treated angles. But generally, though the buildings mass well, the proportions are unsatisfactory, and this is particularly noticeable in the columns. One estimable feature about all these blocks is the homogeneity of architectural style; not to a slavish degree at all, for it is distinctly a case of unity with variety: it is not without interest to draw attention to the fact that the essentially Gothic architect, Scott, should have been compelled to produce a Renaissance Foreign Office, while the essentially Renaissance architect, Barry, should have been compelled to produce a Gothic Palace of Westminster in the Houses of Parliament.

Other architects responsible for work on Government blocks were William Kent and the Earl of Burlington, who collaborated in the Horse Guards, and the Treasury buildings on Horse Guards Parade; the Brothers Adam, whose well-known design for the Admiralty Screen may be admired by all passers-by; Henry Holland in the vestibule to Dover House; and Messrs. Leaning & Leaning, who may not be congratulated for the Admiralty Offices. But still, if here and there a feeling of dissatisfaction is engendered, it may be freely confessed that the result in the aggregate is one which is creditable to the various Governments responsible for these buildings. Attention should be directed to the screen connecting the Local Government Board and adjacent blocks, a worthy companion to Adam's screen further north.

At the time when the War Office was designed I approved the judgment shown by Mr. Young in coordinating his block with the adjacent Banqueting House, that magnificent fragment of Inigo Jones's scheme for a Royal Palace. As a rule architects are selfish and think merely of the building in embryo, unmindful of what is already in existence. It is impossible to over-praise the Banqueting House (now the United Service Institution), and one's sole regret is that the whole Palace, of which the part carried out was but an infinitesimal portion, was not realised, so as to form one of the lasting glories of London.

There is no need to repeat here the animadversions offered in regard to the Houses of Parliament in an earlier article of this series.\* Though not at all bigoted, and though quite prepared to alter my opinions, if occasion demands, yet in the present instance I feel just as strongly now as five years ago. This I may, however, add, that from such a standpoint as the centre of Lambeth Bridge the Clock Tower is not too obtrusive, and the mass of the Victoria Tower is impressive; also, a good deal of frippery detail is lost; the further north one proceeds over the bridge the more this view degenerates.

Westminster Abbey is so well known as to obviate the necessity of description; it is an object of pilgrimage to all civilised peoples. The remarks to be made here are but few; it is only right to record a debt of gratitude to Sir Gilbert Scott for his masterly and sympathetic

\* "The Architect," September 22, 1911.

restoration of Solomon's Porch (the north transept façade); at the same time, regret may be expressed that Sir Christopher Wren, in restoring the western towers, should have seen fit to incorporate Renaissance details in this eminently Gothic building; the same sentimental dislike assails one within in encountering the many Renaissance memorials to the illustrious dead. The only other regret one experiences is that the Abbey was never provided with central tower and with spires.

A few words must be said about St. Margaret's Church, adjacent to the Abbey, erected in the Perpendicular Period of Gothic art; and perhaps these words may be best introduced as an extract from some editorial remarks concerning the Abbey and the Church appearing in "The Architect" of December 26, 1902: "Very few people who see Westminster Abbey realise till they get inside that it is the loftiest church in England. . . . Even if it had towers in proportion to its size, St. Peter of Westminster could never soar over Westminster in the way that St. Peter of York soars over York. At York it is not merely the towers; it is the bulk of the minster itself which rises above the city. . . . We are recalled to its positive size when we see that a parish church of the larger sort" (i.e., St. Margaret's), "with a tower which would alone be a prominent object in most towns, seems small by the side of it. Our ancient minsters were none of them built to stand alone. . . . always had other buildings adjoining or standing near, grouping with and thereby increasing the effect. . . . Among these subordinate buildings a subordinate church is often found, and it always helps to set off its mightier neighbour to greater advantage. St. Margaret's is more important and needful for this purpose than the subordinate church anywhere else. It is an essential part of the group, which it would be a ruin of the whole effect of the Abbey to take away."

Words of commendation are due to the memorial to the gentlemen who were instrumental in bringing about the manumission of the slaves in English Colonies. Buxton, Zachary Macaulay, Clarkson, these and other names are worthy of all honour, and the Gothic drinking-fountain erected in Parliament Square as a memorial is distinctly architectural and entirely praiseworthy. As a piece of natural colour decoration in combination with the features of design it is a model worthy of study. That the materials have so poorly resisted the action of the atmosphere is a matter of regret.

Broad Sanctuary has a collection of buildings of varying interest. The Middlesex Guildhall is a piece of work which grows upon me; my sympathies may be naturally inclined towards Gothic art and may yet feel opposed to many of its manifestations, and such was the first sensation in regard to the Guildhall. But by degrees I am experiencing a revulsion of feeling in its favour; its lack of conventionality is so pronounced that it has taken some time to overcome my instinctive objection to it; one merit which the building possesses is that age will mellow it to its advantage. Westminster Hospital need not be dwelt upon; there are many worse and many better works.

Messrs. Lanchester & Rickard's imposing block, the Wesleyan Central Hall, is, irrespective of its own merits, a great improvement upon the Westminster Aquarium which stood formerly upon the site. It is of a very free Renaissance design, such as these architects favour, and whilst its merits are obvious, it suffers from a sense of megalomania, which is somewhat distressing. The locality of the design is distinctly pleasing, and the pavilion dome is noteworthy; there is about the whole building a sensation as of some giant force breaking forth uncontrolled—not a Frankenstein, not a Jekyll-Hyde, but rather something elemental and almost primeval.

After this, the appearance of Victoria Street is very tame, whether regard be paid to Messrs. Mosely's design for the Westminster Palace Hotel on the northern side, or to Mr. E. M. Barry's terrace blocks on the southern

side of the thoroughfare. As progress is made westwards, there is to be seen a somewhat anæmic terracotta bank designed by Colonel Edis on the one side, and on the other is the block occupied by the Army and Navy Stores, equally anæmic. Christ Church on the northern side, in the Early English style, and so well set back, is an effective block, and is the best feature throughout the whole thoroughfare; but the effectiveness is due more to the sudden break in frontage-line and to the interposition of a green space than to any distinct merits in the building itself, which is indeed stiff.

But, even so, what a contrast to the adjoining Hôtel Windsor in its over-free Renaissance—a monstrosity revealed.

Before going further, consideration might be accorded in fewest words to the buildings along Birdcage Walk in St. James's Park. The block of the Engineers' Institute and the Office of Works on the south side of Charles Street and at the eastern end of the Walk is not one that merits prolonged inspection in its somewhat feeble Renaissance garb. Much more interest attaches to the series of back-fronts of the Queen Anne's Gate houses, whose bowed façades cannot fail to prove attractive to the public gaze. This is a slice of Queen Anne architecture, which is so delightful in its unpretentious effectiveness. The recently-erected offices for the Anglo-American Oil Co. contrast to their own disfavour with the earlier work, being undistinguished on all three of the stone façades which are presented to view.

Wellington Barracks make an interesting group, and even if not extraordinarily architectural (as this word is generally understood), are certainly effective, and the Guards' Chapel near the north-east angle of the parade ground is a good piece of Doric columniation in the portico; the barracks were erected in 1834.

In the Mall, Carlton House Terrace recalls some of the activities of Sir James Pennethorne, who did so much in the adornment of London; the terrace is itself distinctly good from an architectural standpoint, and it replaces Carlton House (the former palatial residence of the Prince Regent), designed by Henry Holland. Of the Duke of York's column there is no need to say much; it is a type of memorial by no means admirable. Marlborough House, the work of Sir Christopher Wren, forms an interesting pile, and is one of his quiet pieces of domestic work, which he knew so well how to produce. St. James's Palace forms a quaint pile, and lends picturesqueness to the north side of the Mall; these varied architectural styles, fronting on one side of this thoroughfare and contrasting with the green of St. James's Park opposite, are not perhaps the most homogeneous setting for the vista of the Victoria Memorial group or of Buckingham Palace, but London is made up of contrarieties and does not lose in interest thereby.

And now, leaving Mall and Walk and returning to Victoria Street, I do so only to refer to Victoria Station, the terminus of to-day's route, with an entire lack of appreciation of the station buildings, which, so far as the S.E. and C.R. is concerned, show a florid group of Renaissance design; and as regards the L.B. and S.C.R. is concerned, show an anæmic frontage equally displeasing. The architectural feature that delights one is to be seen in the long flank wall of the station buildings, and that is certainly worthy a visit of inspection.

And here I must conclude and leave for a future occasion any further consideration of London architecture.

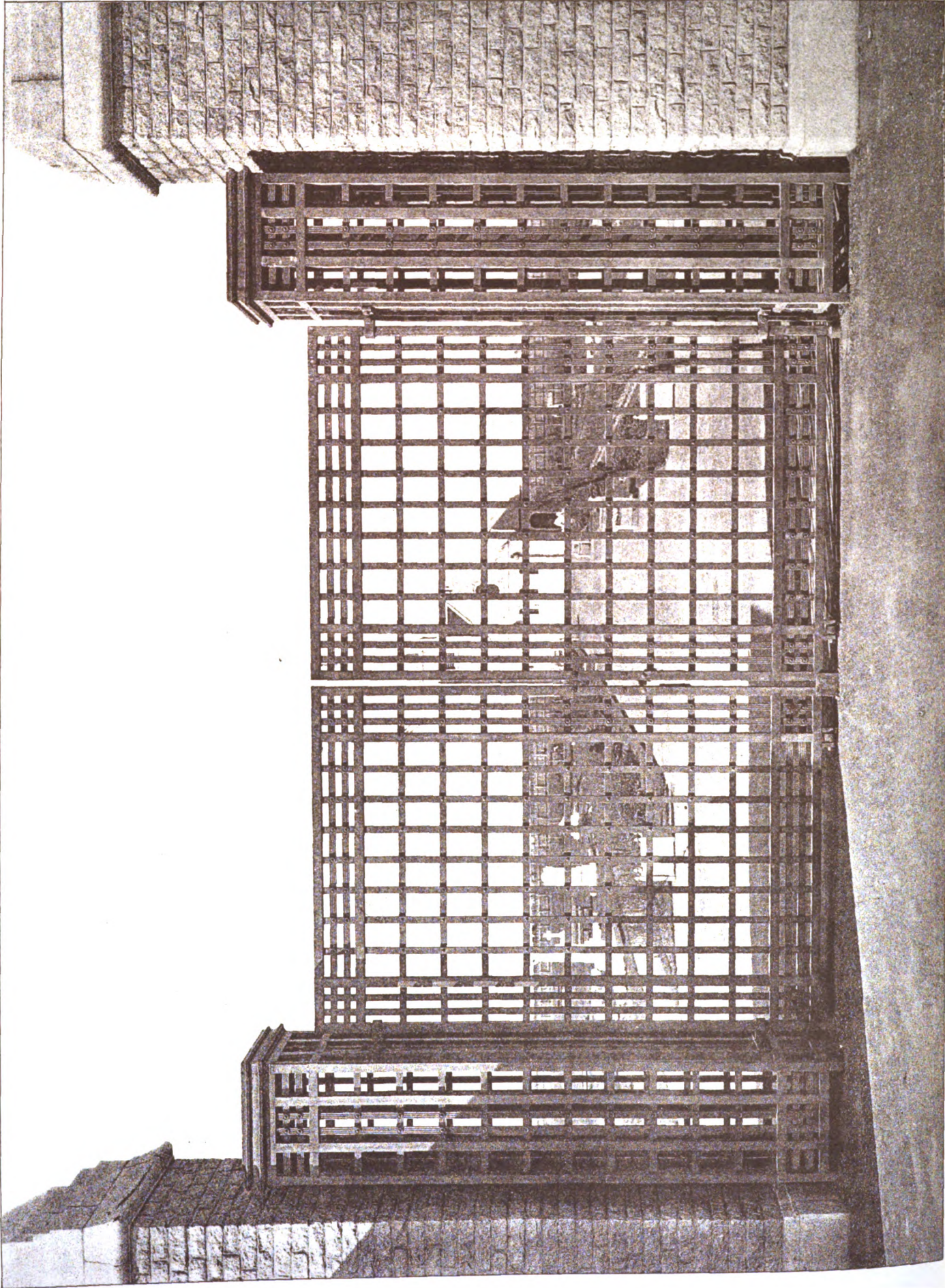
MR. J. SIMMONS, architect and surveyor, Doncaster, has received official news that his third son, Private Charles Percival Simmons, previously reported missing, is now believed to be killed.

MR. THEODORE KNOLLES GREEN, A.R.I.B.A., of 70 Finsbury Pavement, E.C., and Hampstead, who died on June 23 at the age of eighty-four, left estate valued at £19,140 gross. Mr. Green was at the time of his death one of the oldest members of the Royal Institute of British Architects, having been an Associate for fifty-five years. Bequests are left to employees.

2



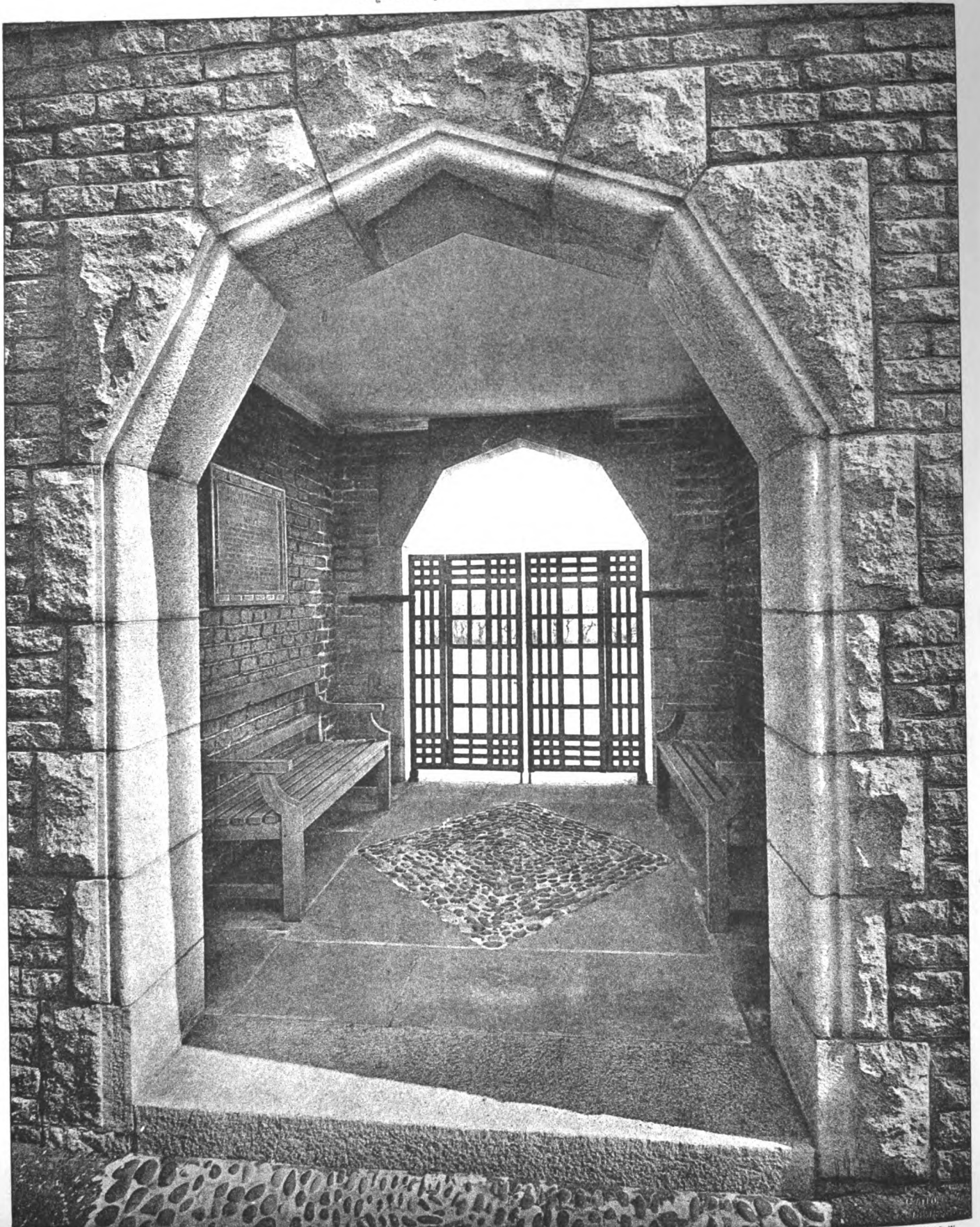




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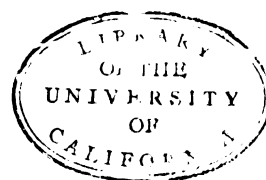


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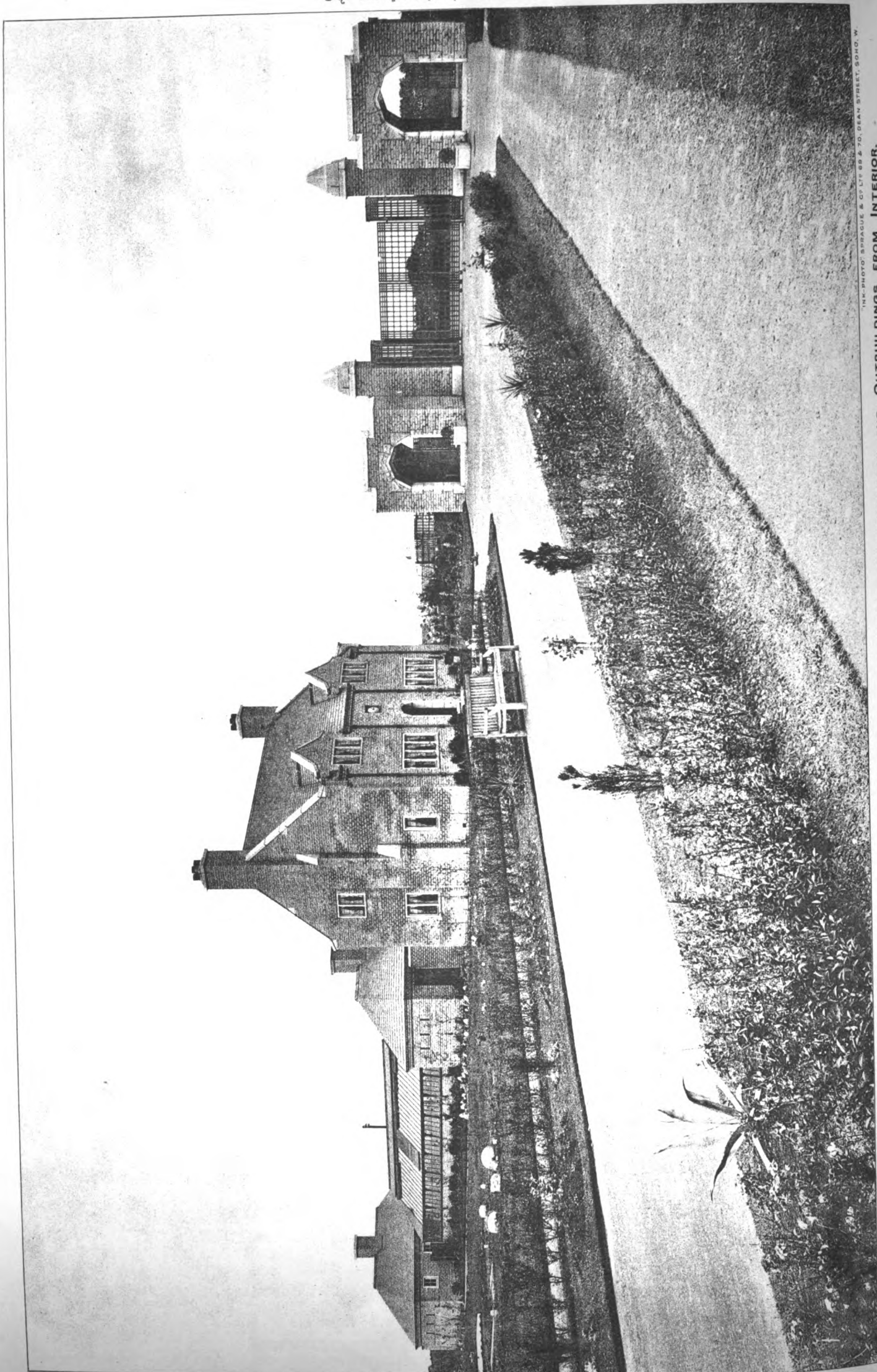
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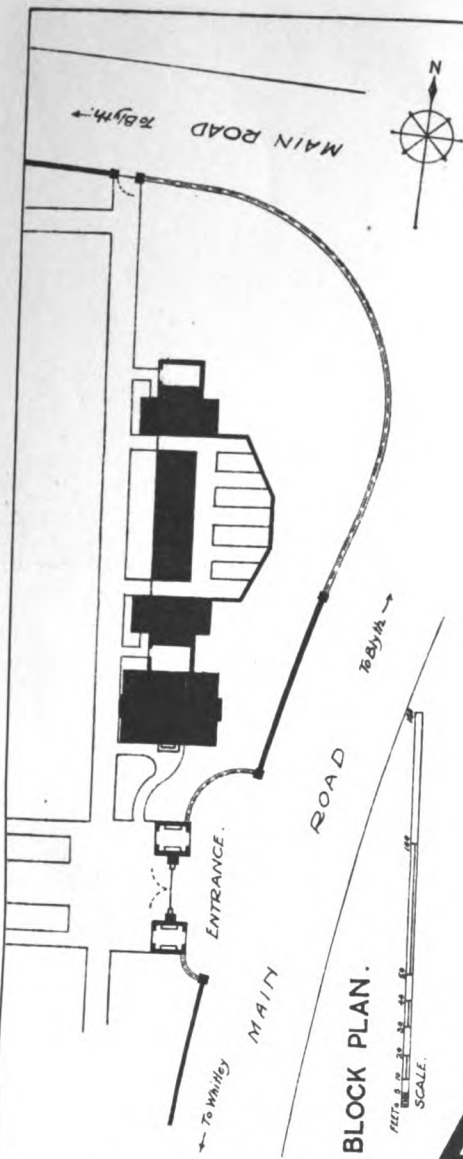




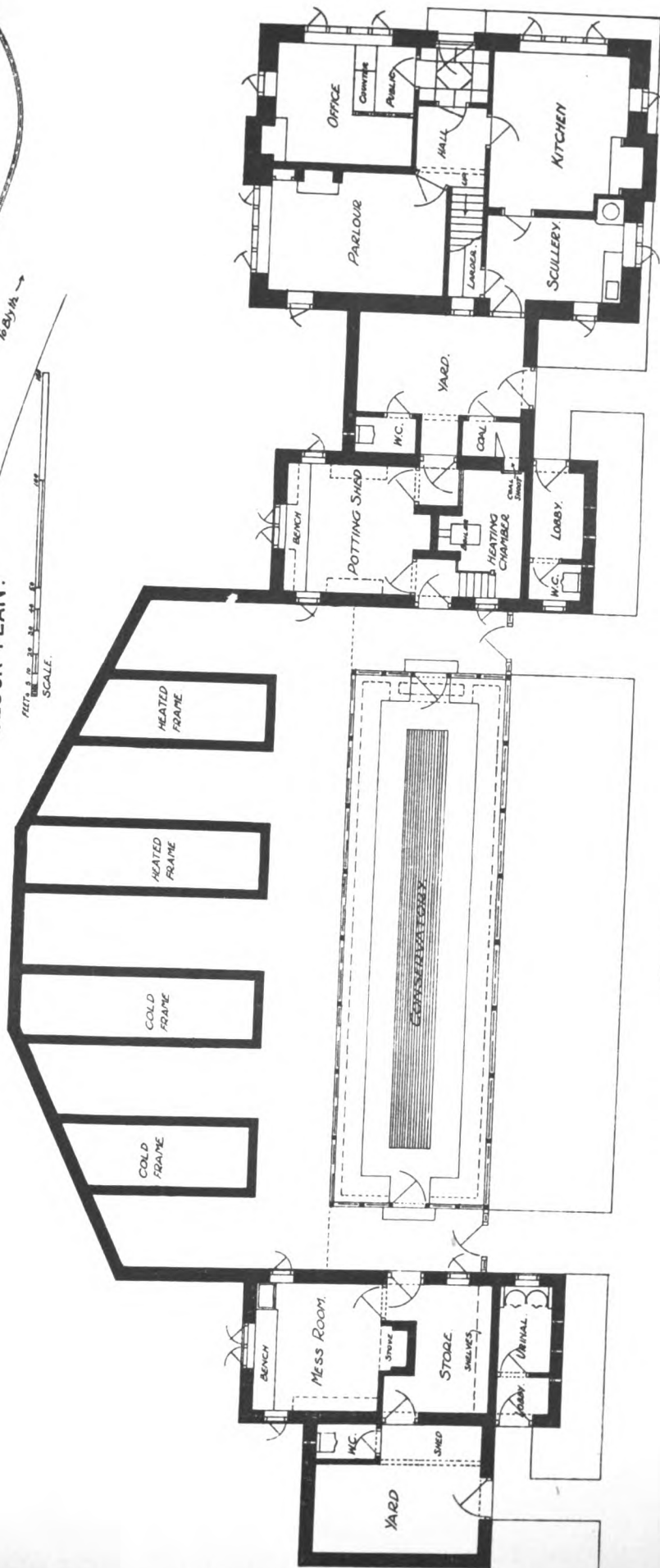
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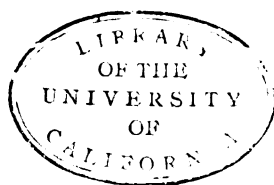
BLOCK PLAN.



PLAN.

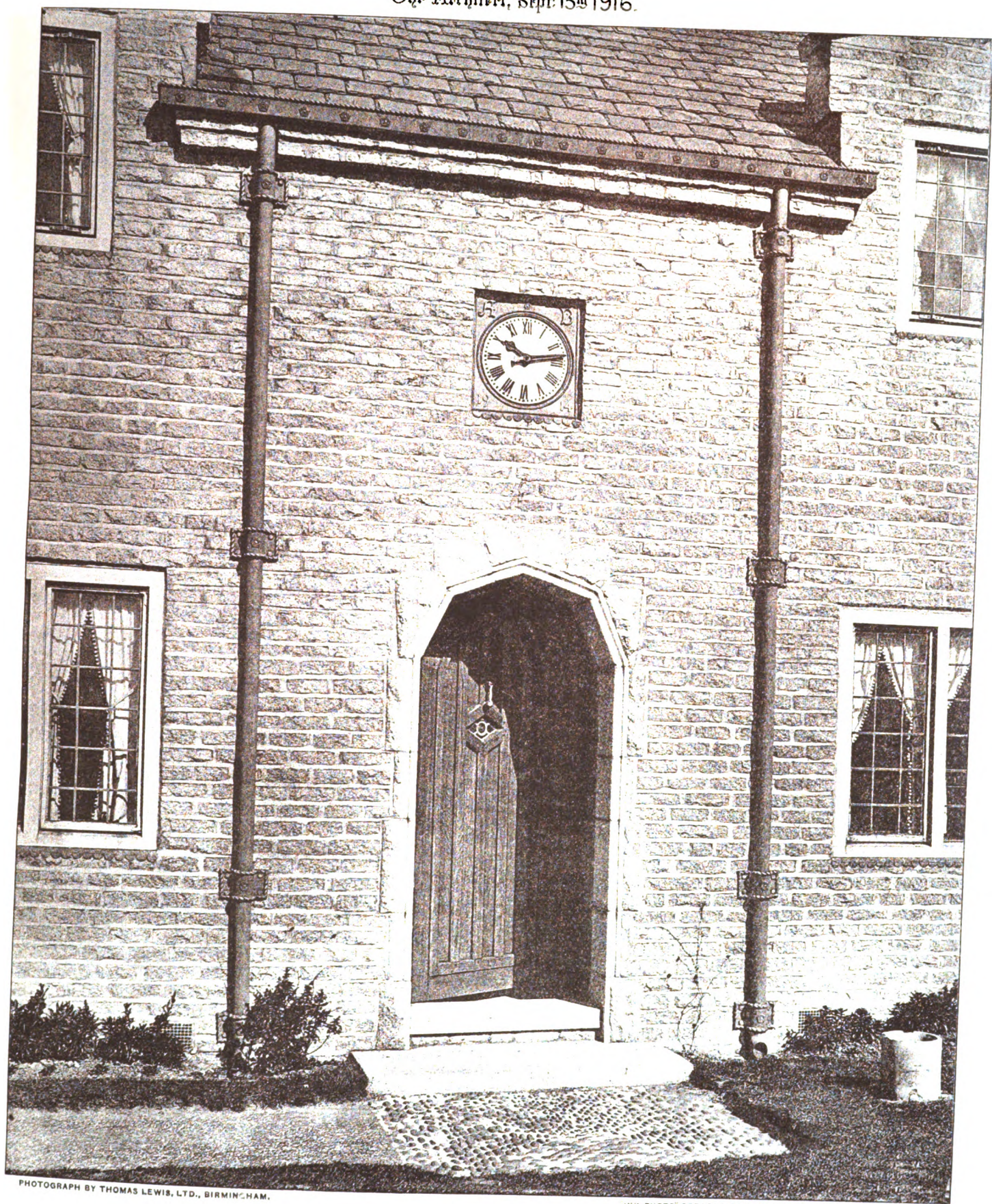
*James Colville FRIBA.*  
ARCHITECT.  
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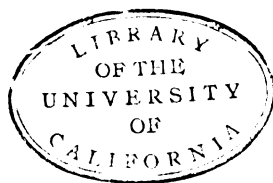
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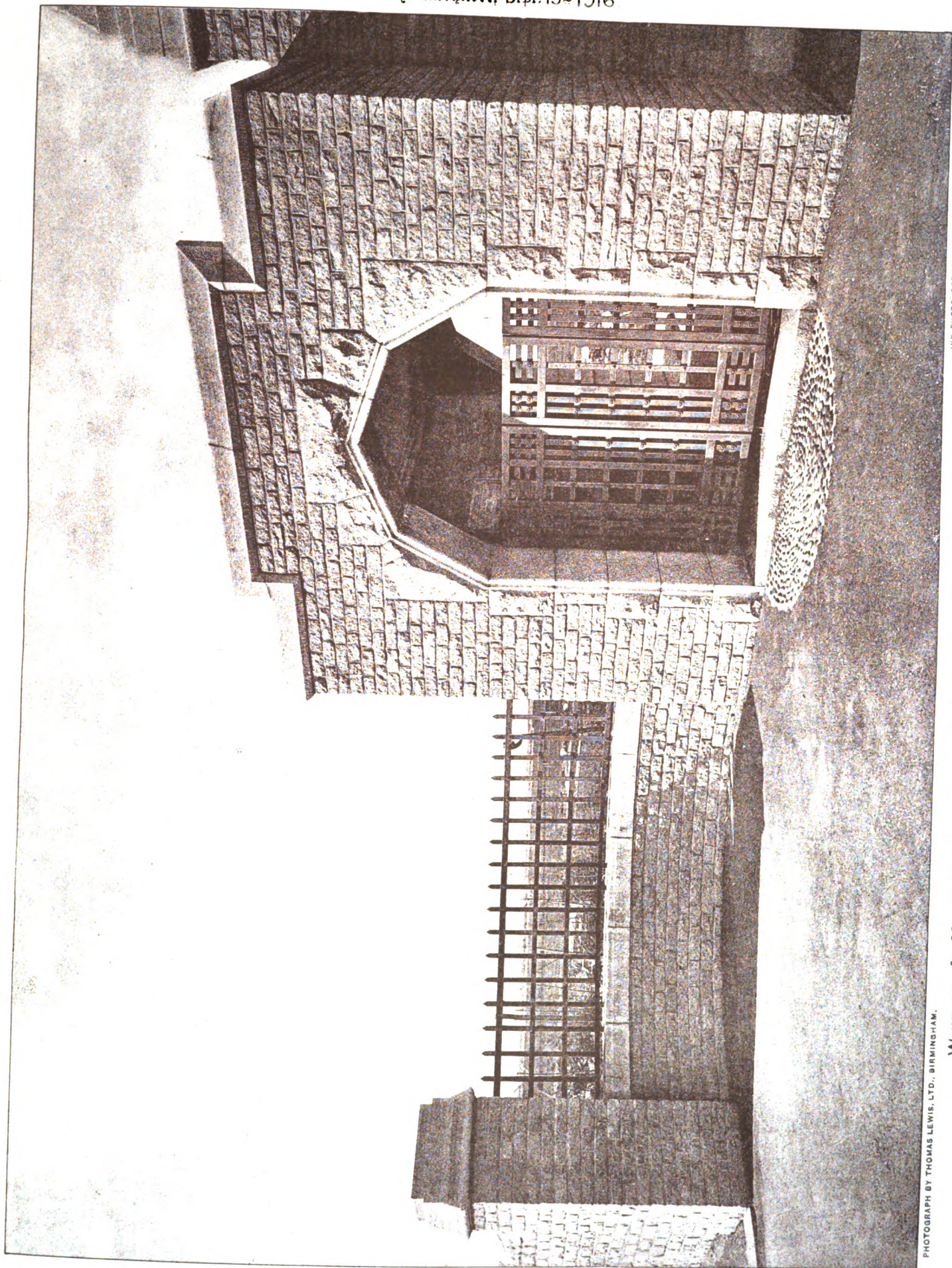
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**HISTORIC BUILDINGS IN THE WESTERN WAR ZONE: THEIR BEAUTY AND THEIR RUIN.\***

By the Rev. G. HERBERT WEST, D.D., A.R.I.B.A.,  
Author of "Gothic Architecture in England and France."

**BELGIUM.**

WORDSWORTH forgot the Netherlands when he wrote—

Two voices are there, one is of the sea,  
One of the mountains, each a mighty voice.  
In both from age to age thou didst rejoice,  
They were thy chosen music—Liberty.

There is a third voice; for as these low-lying plains, out-cast of earth and ocean, are the result of stubborn conflict with the angry sea, so the genius of liberty has always inspired their inhabitants with as noble a spirit of resistance to oppression as ever it did the English or the Swiss. The words inscribed on the group of the Nervii at Antwerp in memory of their resistance to Cæsar. "Courage and Patriotism," have been the motto by birthright of the Flemish race all through their chequered history.

But the whole tribe of the Nervii was destroyed by Cæsar, and the modern Belgians are a mixed race, chiefly of two stocks—Teutonic Flemings in the north, Celto-Latin Walloons round Liège and in the Valley of the Meuse. Three famous figures in the first Crusade, which was largely a Belgian enterprise, may represent for us the three chief qualities of a rather complex national character—intense religious devotion, courageous noble-hearted chivalry, too great a love for the material delights of life.

We see the first in a Walloon monk, Peter the Hermit, who for two years wandered over Europe mounted on a mule, carrying a crucifix and preaching the First Crusade; the second in Godfrey de Bouillon, so called from his brave defence of his mother's castle of Bouillon when he was only seventeen, one of the most courageous, noble, and devout men that ever lived. Robert II., Count of Flanders, represents the third type. He would have been made King of Jerusalem before Godfrey, but refused to stand, saying, "I promised the Countess my wife to return to her on fulfilling my vow. It is a very long time since I had either a hot or a cold bath, or slept between white sheets, and it is well known how accustomed the Flemings are to good living, comfortable beds and warm houses."

But why in this flat, featureless land did cities arise, and where shall we look for them? In Roman times Flanders was a forest-clad, almost unknown corner of the world; but with Charles the Great it became the great trade-centre of his empire, and towns sprang up at the head of gulfs, like Bruges; on an estuary, like Antwerp; where a great road crosses a river, Maestricht, Valenciennes; where two rivers meet, Liège, Malines, Ghent; where a river ceases to be navigable and boats must therefore be unloaded, Ypres, Brussels, Louvain, Douai; and these will all be trading cities whose members will form guilds or trades unions for the protection of their own special industry.

Now what may we expect to be the chief buildings of a city? The account in the Book of Genesis of the building of the first city will tell us. The builders of Babel said: "Go to, let us build us a city and a tower." There you have the history of the beginning of all municipal art with a tower as the first building in a city. It is the first mark of the independence of a community, whether on the banks of the Euphrates, the Po, or the Scheldt. A watch tower, a place of refuge, whence the people might be called together to defend themselves, was the most valued possession granted in early charters to a city. Whether in Italy or Flanders, the belfry tower was the sign of the freedom and power of the community, and its height was in proportion to their greatness. Then came the church, and lastly the town hall, the meeting-place of the town council. But in Flanders, where the

cities began as associations of traders, the market house, or meeting-place of the merchant guilds, or of the chief of them, that of the cloth weavers, comes earlier, and is more important than the town hall, attaches itself to the belfry, and even puts itself in front of and hides the church as it did at Ypres, which both in its buildings and its history was the earliest and remained the most typical of Flemish towns.

Note the position of the three buildings at Ypres. The centre of the Cloth Hall is the ancient belfry tower, which dated from 1201 and replaced a much older wooden one. The wings, east and west, forming a front 437 ft. long, were built on at different times as trade increased. The whole was completed by 1304, but always on the original design. The town hall, or Nieu Werke, was not built till 1620, but the old plans made in 1575 were those followed. This adhering to the original design, century after century, is one great characteristic of Belgian art. Consequently the latest buildings often appear to be far older than they really are.

The River Yperlee ran at first uncovered in front of the Cloth Hall and boats could unload directly into the open colonnade, the closing of the arches of which destroyed much of its original character. The original entrance was at the east end. Not until the merchant guilds had lost their power, and the town had become an ordinary municipality, was the town hall built in front of it.

Till 1383 Ypres was the chief seat of the cloth industry, but in that year there were rival Popes. Ypres supported the one at Avignon in France, the men of Ghent the one at Rome, and they besieged Ypres, with English help under the leadership of the Bishop of Norwich. The inhabitants had anticipated modern warfare and barbed-wire entanglements by surrounding their city with an impenetrable barrier of thorn bushes. In memory of this successful device they put a statue in the cathedral to Our Lady of the Thornbushes, or of the enclosures, and the first Sunday in August was Thorn Day! Alas! it is never likely to be kept again, for it was the very day of the declaration of war. The suburbs where the workmen dwelt were destroyed in the siege of Ypres and never restored, and as the city was besieged five times afterwards, one can only wonder that so much was left for the Huns to destroy.

The cathedral, hidden behind the Cloth Hall, was a beautiful church, but with nothing very remarkable about it outside or in except the tower, which was very fine. The exterior, as is frequently the case in Belgium, was unfinished; the interior had the usual simple cylindrical columns, characteristic of most Flemish churches, which show that they never seized the great principle of Gothic architecture—vertical continuity. The towns became wealthy too late for them to work out a style of their own, as the French and the English did; so they generally took the style of their churches ready-made from France, and they are usually internally of a somewhat uninteresting uniform type, with high narrow lancet windows. But during the fourteenth and fifteenth centuries rich benefactors delighted to make the furniture of the churches and the accessories of worship as splendid as possible. Nowhere was this better seen than in St. Martin of Ypres, where the chimes, the glass, the stalls, the confessionals, the font, the pulpit were of the most splendid description. The only thing lacking there was a fine rood screen, such as we shall see in other churches, as at Lierre, where the screen, still, we hope, existing, is almost precisely like that of Dixmude, now destroyed. The stalls in particular were of the greatest beauty. Belgium has always been famous for its woodcarvers, and one of the very best of them was Urbain Taillebert, who carved these stalls and the still more famous choir screen at Dixmude. The pulpit, the work of two monks, and called the "Pulpit of Truth," was more astonishing than beautiful; but the copper screen, with alabaster statuettes, which enclosed one of the chapels, was a delicate and exquisite work of seventeenth-century art.

It is a pathetic ending to our account of Ypres to quote

\* The first of three lectures delivered before the Royal Society of Arts.



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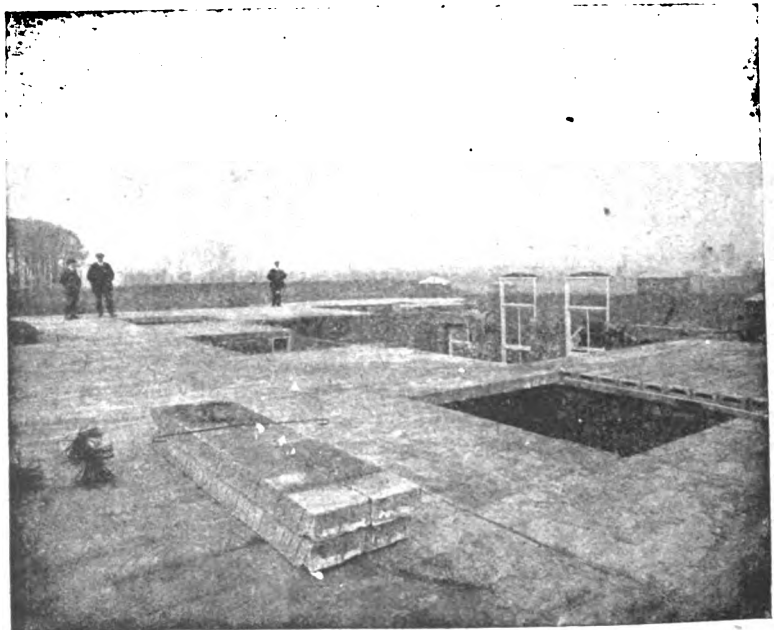
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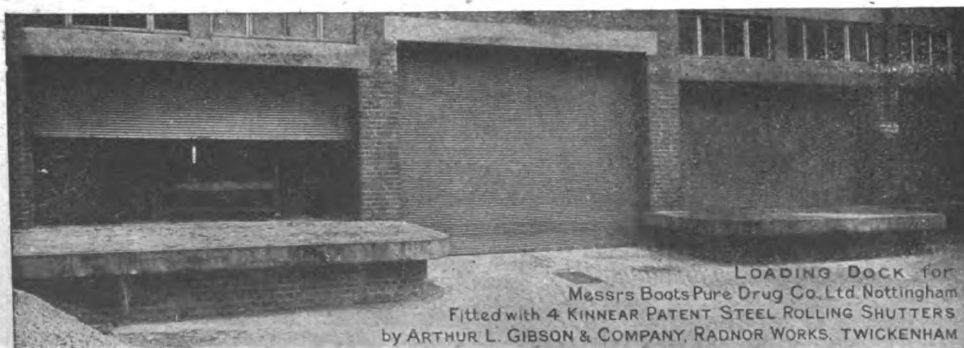
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the guide-book description of it before the war: "The strong seventeenth-century fortifications were destroyed in 1852, and nowadays everything is very quiet and unwarlike. The bastions and lunettes, casemates and moats which spread in every direction round the town have disappeared, and those parts of the fortifications which remain have been turned into ornamental walks; a sleepy country town with clean well-kept streets, dull and uninteresting save for the Cloth Hall, which stands a silent memorial to the past." Now it is the home of desolation; the only living things left there are the rats that scamper over the heaps of stones which form the tomb of the glory that was Ypres.

The thirteenth and fourteenth centuries were a constant struggle by the free cities, especially Bruges, against the efforts of the kings of France to annex their country. In 1302 Philippe le Bel entered the city at the invitation of the Liliemen, or French party, who put into prison the two leaders of the Lion's Clawmen or Clauverts, De Coninck and Breidel. But they escaped, entered the city from opposite sides by night on May 31, and in the morning slew all the French garrison, testing them, like Jephthah, by the shibboleth of "Schilt ende Vriendt"—shield and friend. This was the "Matins of Bruges." Next year a great French army came up against a small force of Flemish peasants outside Courtrai. As at Bannockburn twelve years later, the peasants dug pits covered with brushwood in front of their lines, and in the early morning a priest passed down the ranks blessing them, and each man raised a sod of earth to his lips and swore to die for his Fatherland—a lesson which they have never forgotten since. Archers formed the front line of the French army, and were winning the day till the French knights, shouting that they would not have common men win the battle for them, charged right over their own troops till they were brought up against a thin red line of men of Ypres, dressed in their own scarlet cloth and armed with thick sticks with an iron head, which were ever after called "Goeden Daegs"—Good Mornings—from the welcome which they gave to each knight as they cracked his skull. It was the first modern battle in which, as a little later at Crécy, a poorly equipped voluntary army, fighting for freedom, proved itself more than a match for the "mailed fist" and "shining armour" of the professional soldier. May the omen once again prove true! Such was the slaughter that it was called the Battle of the Spurs, from the hundreds hung up in the cathedral. The French in their flight sacked and burned the town, as the Germans did Senlis the other day, and the town hall had to be rebuilt. There are, therefore, no very old buildings in the place. The great fifteenth-century chimney-piece in the council chamber is the most interesting thing.

Though at this time Ghent stood aloof from the other two *bonnes villes*, Ypres and Bruges, it was on the whole the most patriotic of the three, and shortly after this, under the leadership of a remarkable man, Jacques van Artevelde, made an alliance with our Edward III. On the demand of his suzerain Philippe le Bel, who was fighting the English in Aquitaine, the Count of Flanders, Louis de Nevers, had had all the English in Flanders interned—the first instance, I believe, of that proceeding. So Edward stopped the export of English wool to Flanders. But that ruined the English sheep farmers as well as the Flemish weavers, numbers of whom came over to Norfolk and founded our English clothing trade. It was to put an end to this ruin of the two countries that Edward came over to help Van Artevelde against the King of France. But Philippe was undoubtedly the suzerain of the Flemings, who could not therefore legally fight against him. Edward, therefore, put forward his absurd claim to the French crown, so that the Flemings might be able to say that they were fighting for their true overlord the King of England, who claimed to be the rightful King of France, against a false claimant, the king actually in possession of the French throne.

With Ghent, therefore, are connected the beginning of our long Hundred Years' War with France, the origin

of our woollen manufactures, and what matters most of all to us now, our first great naval victory. For though Edward's army did nothing in Flanders, owing to the murder of Van Artevelde, which put an end to the alliance and made him transfer operations to France—where six years later he won the battle of Crécy in 1346—yet his fleet of 300 ships and 4,000 men completely destroyed the French fleet of 800 ships and 35,000 men at Sluys near Zeebrugge in June 1340. The French, who were all crowded together, were suddenly attacked in the harbour by the English, who sailed in on the flow of the tide. The English archers poured in showers of arrows and then boarded, as at Trafalgar. The English lost only two ships, and 30,000 Frenchmen were drowned. No one dared to tell the French king of the disaster till his jester said: "Oh, the English are cowards, they really are. Why, they didn't even dare to jump into the sea to save themselves as our brave Frenchmen did."

But it was not the military weakness of the people that made the record of the struggle with France one of almost unbroken defeat, but the trade rivalry of Ghent and Bruges. It was the opposition of the boatmen of Ghent to the people of Bruges making a canal to the sea, when their port of Damme was beginning to silt up, that made the latter bring Ghent to the verge of starvation by stopping all food supplies, till Philip van Artevelde, the son of the murdered Jacques, having watched all night on the top of the church tower, came down and roused them to action, saying—

Death opens every door

And sits in every chamber by himself

If what might feed a sparrow should suffice

For soldiers' meals, ye have not wherewithal

To linger out three days. For corn, there's none,

A mouse imprisoned in your granaries

Were starved to death.\*

So they set the great bell Roland ringing in the belfry, and, by a sudden assault against the gate of Bruges, took the city and destroyed the walls. That was in January 1382. But in November the French came, and Van Artevelde was defeated and slain at Roosebek, near Roulers, just where we have been fighting. Yet this disastrous battle, which laid Flanders at the mercy of France, had one good result—the common misery put an end to the enmity between Bruges and Ghent.

Two years later, by the marriage of the heiress of the Count, Louis de Maele, Flanders passed into the hands of the Duke of Burgundy, Philippe le Hardi, and so became absolutely dependent on France. Philippe had been taken prisoner at Poitiers, together with John, King of France, by Edward III., who gave him his name of Le Hardi, or the Cheeky, because at a banquet in London he protested against Edward, the vassal, being served before John, his suzerain.

Philippe le Hardi and his two successors, who were harsh and cruel but wise rulers, crushed Flanders into one. The third Duke, Philippe, miscalled Le Bon, England's ally against France till 1435, starved out Bruges till 24,000 had died of hunger and defeated the men of Ghent under the walls of Audenarde, killing 20,000 of them.

But until then Bruges had been at the summit of her prosperity, and indeed she soon recovered, and in spite of all these troubles flourished exceedingly and was the centre of the commerce of the world. There were more than fifty great guilds, and the merchants of seventeen kingdoms had their palaces within her walls. Sadly few of them have survived, but for 600 years the famous belfry has watched over the rise, the glory and the fall of the city.

In 1280 a fire destroyed the old wooden belfry of the ninth century, and the two lower storeys are very like Ypres. Too like—Bruges must have a higher tower than Ypres, to match with her greater glory. So stage by stage was added, till, beautiful as it is, it is out of all proportion to the Cloth Hall, which it crowns. As a

\* Sir H. Taylor, "Philip Van Artevelde."



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whole, the building is far inferior to Ypres, though the interior courtyard is very picturesque. The town hall (begun 1376) is quite a small building by the side of it; its statues were gilded by H. Hubert van Eyck. All the streets are full of relics of ancient splendour, but sadly shorn of their pristine beauty. One of the prettiest things is the late Gothic porch of the church of Notre Dame, beside which is seen what is left of the house of Louis of Grunthuse, one of the most splendid of the merchants of Bruges. He was a self-made man who rose to be Knight and Treasurer of the Order of the Golden Fleece, and intimate friend of Edward IV., who took refuge with him when driven from England, and created him Earl of Winchester. He was the patron of William Caxton, who was himself Governor of the English "nation" in the city.

If the fourth Duke of Burgundy, Charles the Bold—or as he is better called, the Rash—had not deserved his name by his mad folly, he might have formed a strong united nation able to withstand the attacks of France. As it was, he undid all that had been done, and played the Kaiser to his father's Bismarck. Much of his most ruinous work was done in Hainault, to the cities on the Meuse, Huy, Dinant and Liège. These had never been industrial towns, and the Guild of the Copperworkers of Dinant was the only powerful one. On the whole, they had lived quietly under the somewhat patriarchal government of their Prince Bishop. But the people of Dinant and Liège, whose industries were becoming important, were beginning to be restless and turbulent.

(To be continued.)

## BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### BUCKINGHAMSHIRE.

*High Wycombe*.—Isolation hospital: addition.

##### CUMBERLAND.

*Egremont*.—No. 8 East Road: alterations for Mr. T. Quayle.

No. 29 East Road: alterations for Mrs. Confrey.

##### DURHAM.

*Eastgate*.—Proposed fifty houses, the Heights of the Quarry, for Weardale R.D.C.

*West Hartlepool*.—Electricity Works: boiler house for the Corporation.

Seaton Carew Ironworks: extension.

No. 70 Church Street: alterations to offices for H. B. Olsen trustees.

No. 67 Alma Street: alterations. Mr. A. Stephenson, builder, Villiers Street.

Store, &c., Back Tweed Street, for Mr. Pickering.

##### ESSEX.

*Great Warley*.—Stonyhills Farm, Coombe Green: additions for Mr. J. F. Lescher.

*Rainham*.—Two houses, Warwick Lane, for Mr. J. Vellacott.

##### HAMPSHIRE.

*Andover*.—Two cottages, Norman Court, for Colonel Paynter.

##### KENT.

*Maidstone*.—The "Carpenters' Arms" p.h.: alterations for Messrs. Style & Winch.

##### LANCASHIRE.

*Blackpool*.—Bakehouse, Read's Road. Mr. J. Whittaker, architect, 33 Birley Street.

Business premises, Church Street: additions for the Lancashire Cattle Products Co., Ltd.

Two houses, Kirkham Avenue. Mr. J. Dugdale, architect, 20 Birley Street.

Two houses, Kirkham Avenue, for Mr. R. Webster. House, Ashburton Road, North Shore: additions for Mr. E. Pegg.

##### NORTHUMBERLAND.

*Hexham*.—Cottage, Warden Railway Bridge: additions and alterations for N.E.R. Company.

##### SHROPSHIRE.

*Whittington*.—Proposed parish hall, Station Road.

##### SUFFOLK.

*Leiston*.—Proposed Cemetery chapel (£1,000).

##### SUSSEX.

*Eastbourne*.—Royal Parade East and Desmond Road:

alterations for Messrs. Arnold & Maggs. Messrs.

Peerless, Dennis & Co., Ltd., builders, Grove Road.

Pair of houses, Upland Road. Mr. S. Box,

A.R.I.B.A., architect, 89a Terminus Road. Mr.

A. Avar, builder, Bankside, Charleston Road.

No. 1 Dudley Terrace: alterations. Messrs. Oakden

& Stevens, architects, 103 Cornfield Road. Mr.

T. K. Stapley, builder.

Workshop: 102a Tidewell Road: addition. Mr.

F. G. Cooke, architect, 2 Hyde Gardens.

##### YORKSHIRE.

*Castleford*.—Offices, Savile Road, for Messrs. Hunt Brothers.

Parish Church, Allerton: Sunday school.

*Lartington (Barnard Castle)*.—Proposed Wesleyan church.

*Rotherham*.—Proposed mission church for Ryecroft and Sandhill.

#### SCOTLAND.

*Aberdeen*.—Garage to No. 2a Allyn Place, for Dr. A. Mitchell. Mr. H. Macgregor, builder.

Stabling premises, Princes Street: alterations for Mr. George Bothwell.

Store, Berryden Road, for the Northern Co-operative Co., Ltd.

Store, Palmerston Place. Mr. W. E. Gauld. F.R.I.B.A., architect, 11a Dee Street.

*Dundee*.—Cottage, Americanmuir Road, for Mr. W. B. D. Keith.

House, Somerville Place: alterations. Messrs. Maclaren, Sons & Soutar, architects, 10 Reform Street.

Offices, King Street: alteration for Messrs. T. Bonar & Co.

Cinema Theatre, Bellfield Street: addition for Mr. A. Henderson.

*Stonehaven*.—St. Leonard's Auxiliary Hospital: addition for sixteen beds and a recreation room.

#### IRELAND.

*Kilkeel*.—Orange Hall and caretaker's house, Green-castle Street. Mr. J. B. M'Keown, architect.

## PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 7,325. May 15, 1915.—A. O. Vicuna, 14 Lupino Street, St. George's Square, S.W. Apparatus for raising liquids.

10,460. Jan. 19, 1916.—A. E. C. Hammond, 58 High Street, Sidcup, Kent. Screw down valves, taps, and the like.

11,692. Aug. 13, 1915.—William Scott, West Mount Iron Works, Halifax. Machine for bending angle iron or tee-iron bars into hoops, rings, or the like.

11,779. Aug. 14, 1915.—D. B. Morrison, Hartlepool Engine Works, Hartlepool. Apparatus for using in combination with water meters.

12,966. Sept. 10, 1915.—W. F. Brown, 2 Kingsdale Avenue, Higher Tranmere, Birkenhead. Slide rule.

13,640. Sept. 25, 1915.—John Rothwell, Britannia Works, Farnworth, Lanes. Revolving ventilators.

14,749. Oct. 19, 1915.—M. N. Connor, The Ever Ready Manufacturing Co., Pearl Street, Buffalo, New York. Fire extinguishing apparatus.

100,409 (6,352, May 3, 1916).—Dated under International Convention, April 29, 1915.—Hugro Manufacturing Co., Warsaw, Kosciusko, Indiana, U.S.A. Vacuum cleaners.

101,126 (4,712, March 30, 1916).—Internationale Siegbartbalken-Gesellschaft, Luzern, Switzerland. Reinforced concrete bases for poles.

101,134 (7,125, May 18, 1916).—Cornelius Maashant, Arevalo 1943, Palermo, Buenos Aires, Argentine. Padlocks, bolts, and like fastening devices.

101,135 (7,612, May 29, 1916).—William Sharp, Coniston, Brighton Road, Purley. Fencing posts or standards.

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# THE ARCHITECT

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### SCIENTIFIC AND INDUSTRIAL RESEARCH.

IN this country scientific research in relation to industry was almost entirely of a sporadic and individualistic character until the establishment by the Government, in 1900, of the National Physical Laboratory, opened in 1902 as a step in the encouragement of organised scientific support for our trades and industries. In 1902, also, the Imperial Institute was reconstituted and transferred to the Government by Act of Parliament, with some intention of research into the characteristics of the products, whether manufactured or natural, which the various parts of the Empire yield. But neither the Imperial Institute nor the National Physical Laboratory have experienced either the burden of work or the large subsidies which would have followed on a general recognition that their activities were necessary to the national welfare.

Since that time, the Imperial College of Science and Technology has been founded, in 1907, "to give the highest specialised instruction and to provide the fullest equipment for the most advanced training and research in various branches of science, especially in its application to industry." Cambridge, Oxford, and younger Universities, together with the London Polytechnics and the great technical colleges of Glasgow and Manchester have established many technological departments, in which, however, instruction rather than research has been the primary object.

Other machinery and additional State assistance were still absolutely necessary in order to promote and organise scientific research with a view to its application to trade and industry, but it needed the shock of the great war to make the need manifest. The outbreak of war found us unable to produce at home many essential materials and articles. Particularly was this the case with those scientific industries—sometimes called key or pivotal or master industries—which can never employ a large proportion of the population because the bulk of their products needed for the world trade is inconsiderable, and yet which are essential to the activities of industries of enormously greater magnitude. An example of this is seen in the relation of dye-stuffs and textiles. Our annual consumption of dye-stuffs before the war is said to have been about two millions sterling, but the supply of these was essential to the manufacture of two to three hundred million pounds' worth of textiles produced annually in the United Kingdom. In other key industries such as those of magnetos, watch-maker's lathes, optical glass, chemical glass and porcelain, the proportion between the master and subservient industries is more pronounced than even that between dye-stuff and textiles.

The recognition by the Government of the necessity for action by the State resulted in the evolution of a "Scheme for the organisation and development of Scientific and Industrial Research," as set out in a White Paper (Cd. 8005) issued in July 1915. The scheme provided for the establishment of (a) A Committee of the Privy Council responsible for the expenditure of any new

moneys provided by Parliament for scientific and industrial research; (b) a small Advisory Council responsible to the Committee of Council and composed mainly of eminent scientific men and men actually engaged in industries dependent upon scientific research. These bodies have since been actively at work, and the Report of the Committee of the Privy Council for Scientific and Industrial Research for the year 1915-16 has recently been issued.

One very great step in advance towards the establishment of a permanent organisation for the promotion of industrial and scientific research has thus been taken by entrusting a single fund for the good of the United Kingdom as a whole to a single authority—a Special Committee of the Privy Council. It has been questioned whether it would not have been wiser to avoid the inevitable difficulties resulting from the war by postponing action until peace was restored, but Mr. Arthur Henderson, the then President of the Board of Education, foresaw this criticism, and, in the White Paper of July 1915, pointed out that "we cannot hope to improvise an effective system at the moment when hostilities cease, and unless during the present period we are able to make a substantial advance, we shall certainly be unable to do what is necessary in the equally difficult period of reconstruction which will follow the war."

The Advisory Council were therefore directed "to frame a programme for their own guidance in recommending proposals for research and for the guidance of the Committee of Council in allocating such State funds as may be available. This scheme will naturally be designed to operate over some years in advance, and in framing it the Council must necessarily have due regard to the relative urgency of the problems requiring solution, the supply of trained researchers available for particular pieces of research, and the material facilities in the form of laboratories and equipment which are available or can be provided for specific researches. Such a scheme will naturally be elastic and will require modification from year to year; but it is obviously undesirable that the Council should live 'from hand to mouth' or work on the principle of 'first come first served,' and the recommendations (which for the purpose of estimating they will have to make annually to the Committee of Council) should represent progressive instalments of a considered programme and policy."

Accordingly the Council decided to give science in its applications to industry precedence over pure science in their deliberations. They are under no misapprehension as to the relations between pure and applied science. It has been said that what people call applied science is nothing but the application of pure science to particular classes of problems. And, properly speaking, this no doubt is so; there are not two different kinds of science. At the same time the Council realise that they have to deal with the practical business world, in whose eyes a real distinction seems to exist between pure and applied science. The average manufacturer is impressed with the importance of quick returns; he cannot afford to wait. He wants an immediate solution of difficulties that arise within his own particular sphere of industry. These difficulties seldom afford an indication of the true nature of the problems to be solved. They are generally secondary in their nature, and a direct attack on them is likely to be as empirical as the symptomatic treatment of disease.

But there was another consideration which alone would have compelled the Council to begin with research of directly industrial application. The Universities, which are the natural homes of research in pure science, have been so depleted of both students and teachers by the war that they are barely able to continue their routine work and can command at the moment neither the time nor the detachment of spirit that are the essential condi-

tions of original research. Inquiries recently made by the Council in the hope that they might be able to help individual investigators at the Universities to increase their output, have convinced them that any effective encouragement of research in pure science must await the return of peace.

In pursuance of their policy of concentration on the field of industrial research, both as the best means of enlisting the co-operation of the manufacturers, without which no Government scheme could succeed, and as the quickest way of preparing for the trade conditions likely to arise after the war, the Council have made inquiries as to existing researches which showed that there were certain researches being conducted or directed by professional associations in the period preceding the war which stood in grave jeopardy of enforced abandonment.

These investigations had been paid for by the voluntary contributions of several great engineering and other professional societies, and thus carried with them the best guarantees of their necessity and effectiveness. The Council decided therefore to save as many of these derelict researches as possible, and accordingly recommended the payment of a series of grants to the societies concerned. These researches, already in progress, deal with laboratory and optical glass, refractory materials used in gas industries, hardness test for metal journals and pins, properties and composition of alloys, flow of steam through nozzles, heating of buried electrical cables, properties of electrically insulating oils, tool steel experiments, methods of notched bar impact testing, corrosion of non-ferrous metals, hard porcelain, setting and disintegration of salts and crystalline substances, de-gumming of silk, tin and tungsten, statistical work in preparation of field for research in iron and steel, rate of heat transmission from hot surfaces to fluids over them, deterioration of structures of timber, metal and concrete in sea-water.

(To be continued.)

#### REMINISCENCES OF BRUGES, JUNE 1914.

ROUND the exterior of the apse of the church of St. Jacques runs a very curious thirteenth century cornice,

anties at the time when the cornice was coming into existence. The animals may, as was common in mediæval art, have some symbolical meaning, but it would be unwise to hazard a conjecture as to their exact significance, as they are so difficult to identify.

#### NOTES AND COMMENTS.

WE may hope that the clear intent of the Austrians to destroy the historic and artistic value of Venice may remain unfulfilled. The latest attempt has fortunately resulted in but little damage, though the church of SS. Giovanni e Paolo has been bombed. This church is, indeed, one of the gems of the city, and it is a cruel disaster that it should have been even touched, but the bomb did not hurt the equestrian statue of the Colleoni, which stands in front of it, and which was considered by Ruskin the most glorious monument in the world. It is, however, covered with debris from the explosion.

The church of SS. Giovanni e Paolo is, after St. Mark's, the most imposing church in Venice. It was erected in the fourteenth century, and contains the mausoleums of well-known Popes by celebrated sculptors, as well as chefs d'œuvre of painting by Venetian masters.

There is no need to make a fuss over the "stone ship" that the Norwegian journalist describes as the first ever floated, though it is only a thousand-ton barge. Reinforced concrete has been already extensively used for barges, scows, pontoons, and such like structures that float, but whose lines do not display that complexity of curvature to be found in a ship, even a tank steamer. It would not be impossible to build a sailing yacht in reinforced concrete, but the cost of the "forms" would probably be more than that of a wooden or metal hull.

The statement that the old Roman wall of Verdun has been laid bare by the German artillery reminds the "Manchester Guardian" of Viollet-le-Duc's "Annales d'une Forteresse," which most of us have read with pleasure in our Gothic days. The famous architect in that book described in vivid narrative form the successive phases



CORNICE ON THE APSE OF THE CHURCH OF ST. JACQUES, BRUGES.

which was preserved when the building was restored in 1897-98. Grotesque animals, each placed in a semi-circular arch, and the heads and arms of grimacing men, similarly enclosed, with fierce-looking animals' heads as corbels, make a unique decoration. The men's heads were probably suggested by the contortions of some of the jesters who amused the good people of Bruges with their

through which a naturally adapted fortress on the French frontier had passed during the ages, and the varying methods in which the science of war had made use of the physical features of the terrain. One has to begin with the storming of a Gaulish "dun" by Cæsar's legions and the establishment of a Roman camp. Later one gets the mediæval battlements, and still later (as at Verdun) the

construction by Vauban of a wonderful series of fortifications. Finally, the place is fortified on improved lines and plays a prominent part in the Franco-Prussian war. To complete the book it would be now necessary to add a chapter showing how the old battle-ground had to assume an entirely new guise in the present war, the forts of 1870 becoming as obsolete as the lines of Vauban, the turrets and machicolations of the fourteenth century, or the stockade of the Romans.

At the opening ceremony in connection with the completion of a housing scheme for working men within the area of the Pembroke Urban District Council, when Mr. Duke, the Chief Secretary for Ireland, fulfilled his first public engagement in that country, much was said with regard to the need of State help in respect of municipal housing schemes, and particularly with reference to the appalling conditions of housing in Dublin. It seems to us, however, that the Pembroke people have shown the Dublin Corporation how to help themselves. At an expenditure of about £125,000, decent housing has been provided for 759 families without involving the ratepayers in any loss, as the rents payable will cover all the outgoings, including the repayment of capital, interest, insurance, and repairs. It is true that Pembroke is able to utilise more virgin soil than is to be found within the city boundaries of Dublin, but the Corporation of the Irish capital has neglected to embrace such opportunities of acquiring inexpensive land as have been presented, and has carried out expensive housing schemes on costly sites in old, cramped, and unhealthy areas. Now they are squealing because the Government will not, in the present crisis, still further finance their extravagance.

In the "Land Union Journal" Mr. Douglas Wood points out how the chief weakness of the Town Planning Act, 1909, the lapse of time necessary for the completion of a scheme, may be obviated by co-operation between landowners and the local authority in formulating new by-laws for a "special area" that will permit of estate development on town planning lines, but without the operation of the Town Planning Act.

The prospectus of the Northampton Polytechnic Institute, Clerkenwell, shows the very full provision made for technical instruction in mechanical and electrical engineering in all their branches, in clock-making and technical optics, technical chemistry in relation to metal work, and the distinctive crafts of Clerkenwell jewellers, gold and silversmiths, diamond mounters, copperplate and silverplate engravers, die sinkers, chasers, decorative metal workers, modellers and workers in plaster, bookbinders, wood, stone, and marble carvers, cabinet makers, painters, decorators and sign writers, embroiderers, &c.

Attached to the British and French forces at Salonika is an archæological party under the direction of an English officer who is an ardent archæologist, and their work has proved both interesting and profitable. The digging of trenches has unearthed some fine fragments of statues, decorated vases, delicate sculpture, kitchen utensils, toilet objects, and pieces of money, and these have been installed at a museum in the White Tower at Salonika.

The notice of death "at King's Road Cottage, Beith, on the 13th inst., Robert Smith, architect and joiner, in his 93rd year," takes us back to the time when, in the eighteenth and early nineteenth centuries, although there were architects whose names are recorded in the histories, who practised simply as such for wealthy patrons, the ordinary citizen was served by the joiner or builder, who also designed the work he constructed and who received his training, not only in the workshop, but in

the offices of the great men. This is the secret of the excellence in detail of so much of the vernacular architecture of the eighteenth century.

Although there are at present only two open-air schools under the London County Council, one at Birley House, Forest Hill, and one at Shooter's Hill, the value of such institutions is undoubted, and is emphasised by Sir George Newman, the chief medical officer of the Board of Education, in his latest annual report.

There are about 120 delicate children in each of the schools mentioned, brought from many overcrowded districts in London by the L.C.C. trams. They are for the most part the victims of London's town-planning and housing problems, and there is a terribly long waiting list. Medical inspection has discovered most of them, and the local care committees have their worst cases waiting for vacancies.

Anæmia, poor chest expansion, and early symptoms of phthisis, are the ills which respond most easily to this combination of school and medical treatment. Children returning from sanatoria to which they have been sent for treatment for tuberculosis are always suitable cases for these schools, and it must be a subject for some dissatisfaction that at a time when child-life is so precious this system of preservation (started in 1907 at Bostall Wood) has not been more widely adopted.

The gain (as shown in the official returns) in the weight and well-being of the children in open-air schools is 50 per cent. above the average normal gain as registered at the ordinary L.C.C. schools. Part of the steady improvement in the children is due to their own keen enjoyment of their life, and in the freer curriculum and the greater attention given to manual and practical teaching. When a child for some reason is removed for a short time, such as a month, it has been found that its height and growth stop for that period and immediately increase when it is sent back again.

There are about sixty-three open-air classes held in the summer in the public parks and the playgrounds of the schools, and these to a certain extent cover a part of the process which is more thoroughly dealt with in the two existing schools. At the Ranelagh Road School, Westminster, thirty children have the advantage of what may be called a miniature open-air school. This is primarily due to the insistence of the Westminster Health Society on the needs of its children returning from sanatoria for whom no place could be found in the existing schools. The difficulty of such classes is an educational one, as generally all delicate children in the school, irrespective of age, are gathered together for the open-air class, while in the open-air schools there are classes graded according to age.

In the open-air schools the meals form part of the system. In Birley House, where the children do not have to take refuge from the weather more than three or four times a year, a breakfast of porridge is given to the children on arrival, an early lunch of currant bread follows later, and at midday they get a hot meal, such as stew or joint, with vegetables and sweets, and before leaving they have a meal of milk and bread and butter. The hours are the ordinary school hours.

#### NOTES ON BOOKS.

"Saints and their Emblems." By Maurice and Wilfred Drake. Illustrated by twelve plates from photographs and drawings by Wilfred Drake. (London: T. Werner Laurie, Ltd. £2 2s. net.)

Experts in heraldry are not prepared now to date their art further back than the reign of Henry I., the shield-painting and other pseudo-heraldic work previous to that time being carried out according to the whim of owner or painter instead of to rule. It may be to many as something of a shock to be told that no armorial device on shield or coat or banner went into the fight at Hastings. The armoury first of war and then of peace soon



firmly established itself, and within a century "England was pied with armories." Ecclesiastical vestments, as well as the paraphernalia for tourney or battle, were made to record the importance of the lord or knight, or even merchant, and his lady. In a fifteenth-century English tapestry recently shown at the Burlington Club's exhibition an angel is shown armed with a shield of the Passion—the Kiss of Judas quartering the Paschal Lamb, the Hammer and Pincers, the Scourge and Reed; another angel bears up the helm crested with the Pillar of Scourging between the Reed and Spear. Could there have been an ecclesiastical heraldry far older than the reign of Henry I.? That is one of the questions suggested by this fine volume, "Saints and their Emblems." For example, St. Apollonia of Alexandria, who died in 249, is invoked for toothache and was represented as holding a tooth in pincers by several medieval artists on English rood-screens and windows; the idea could hardly have originated a thousand years after the virgin martyr's death, and might well have been continuously depicted since the third century. Surely that would constitute a kind of ecclesiastical heraldry understood by the people long before that of the Court. However, the authors, Maurice and Wilfred Drake, are not concerned with any provocative questions of that kind. Their primary purpose is to help the ecclesiologist and antiquary, the artist and craftsman to connect the right saint with the right emblem. And a laborious undertaking the book must have been, since the number of saints here recorded is between four and five thousand. Many of the lesser-known are not linked with any particular emblem; in such cases a sentence or two of biography is given. The plan of the book is thus described: "To the saints' names and emblems are appended qualifying initials, feast day or days, and date of death, whenever this could be obtained. Further, where possible, the locality with which the saint is generally associated is named, and following each list of emblems are references to volumes wherein his or her life may be more exhaustively studied. To all accredited emblems which are already associated with the better-known saints have been added the names of places where such examples may be seen." The second part of the dictionary gives the emblem and then the saints or saint to which it belongs as: "Alms Bag and sword—Wenceslas. K. M. (Sept. 28.)" The appendices are: (1) Patriarchs and Prophets with their Emblems; (2) Sibyls with their Emblems; (3) Patron Saints of Arts, Trades, and Professions; (4) Other Patron Saints. In a work covering such multitude of detail there is certain to be room for small variations of opinion. Thus we were under the impression that St. Christopher was the patron saint of travellers and not St. Julian Hospitator; that St. Anthony was invoked by those who have lost things, not St. Gracian; that St. Luke was the patron saint of painters and doctors (both classes are omitted from the Appendix 3); that St. Chad was the patron saint of medicinal springs and wells (the latter are likewise omitted). The saint charged with looking after the interests of architects is St. Barbara, died about 300, who also stands in the same relation to armourers, artillerymen, and fire-work makers. The St. Barbara invoked for fortifications, as well as against sudden death and thunder and lightning, may be another person, for the latter's feast is here given as March 31, instead of the December 4 of the first named; nevertheless, the dictionary does not give two saints of this name. A few inaccuracies have struck the reviewer. Joan of Arc is only a "Blessed," not yet having been canonised as a saint. Plate VII. represents St. Martin of Tours, Pope and Martyr, and not St. Martin of Tours, Bishop and Confessor. But it is far pleasanter to praise the good qualities of this book than to search for microscopic shortcomings. And it is easier, too, for its merits are many and obvious. The frontispiece showing a sixteenth-century Flemish stained-glass window is a real delight to the eye and worthy of the excellent way in which the whole volume is arranged and printed. The labour involved in its preparation must

have been enormous. The success attained will, we hope, requite all who have had a hand in it.

"The Practical Design of Steel-framed Sheds." By Albert S. Spencer. (London: Constable & Co., Ltd. 10s. 6d. net.)

The object of this book is to facilitate the designing of steel-framed sheds of a limited number of types, constructed either with sheeted or slated roofs, with sheeted, brick-panelled or open sides. The facility of design is effected by the standardising of shed members and the provision of tables of stresses and standard sections for such standardised members. By affording such facility there is less temptation to leave the designing of sheds to their manufacturers, with the result that the strength of their parts is usually ridiculously inadequate and inconsistent, some being only capable of resisting a horizontal wind pressure of 5 to 7 lb. per square foot, others designed for a wind pressure of 30 to 40 lb. The author adopts an allowance of 30 to 40 lb. horizontal wind pressure for roofs, and 20 to 25 lb. for vertical surface of ends and sides. The merits and use of various materials for external coverings, both of roofs and sides, are discussed and explained, details of construction are included, and generally sufficient information given to enable anyone already trained in the theory of structures and practical designing to prepare schemes rapidly for steel-framed sheds. The book should therefore be very valuable not only in the present war activity for buildings of temporary use, but for the great extension of manufacturing premises which we hope will result from an expansion of British trade after the war.

## ILLUSTRATIONS.

### ISLAND BUILDINGS, MOUNT MELVILLE.

THE buildings here illustrated are situated in an artificial lake. The island contains some well-grown forest trees, and as the natural level of the ground surrounding the trees is lower than the water level, the walls and buildings surrounding the island serve to disguise this fact. The bridge is built of stone, the buildings for the main part of brickwork covered with harling. The buildings consist of a summer-house, loggia, boat-house, &c. The general contractors for the building works were Messrs. J. H. White & Sons, of St. Andrews. Mr. Paul Waterhouse is the architect.

The drawing, by Mr. Swan, was hung in the Water Colour Room of the recent Royal Academy Exhibition.

### BROMBORO' ESTATE, PORT SUNLIGHT.

THE drawing showing the cottages on the Bromboro' Estate, Port Sunlight, illustrates the design which obtained the first premium in the competition arranged by Sir William Lever and assessed by Mr. Geoffrey Lucas, F.R.I.B.A.

The intention is to erect several blocks of five and seven cottages with shops attached. Rough-cast with a tarred cement plinth is used for the external finish to the walls, tiles for the roofs and elm boarding in the gable.

### GARDENER'S COTTAGE, PETERLEY, BUCKS.—"PARSON'S COT," LITTLE KINGSHILL, BUCKS.—"REEDMERE," ROMFORD.

THESE are other examples of Mr. Theakston's skilful treatment of the small house of cottage type.

### DOWART CASTLE, ISLAND OF MULL.

WE give some further illustrations of Messrs. John Burnet & Son's restoration of this historic building.

MR. T. TALIESIN REES, F.R.I.B.A., F.S.I., has recently been appointed as military representative in Birkenhead, a borough with which the Rees family have long been connected.

**FRENCH BUILDING AFTER THE WAR.**

By ARTHUR VYE-PARMINTER, architect.

AT the recent Exhibition of the "Cit  Reconstitu e," held in the Tuileries Gardens at Paris, the buildings exhibited as examples of the style of work likely to be executed for the reconstruction of the villages in the devastated areas of France were chiefly of the temporary kind, constructed of timber with wood linings or plaster fillings, with roofs covered with one or another of the many asbestos or composite slates. This Exhibition, although interesting in the way of producing some ingenious forms of light construction in timber, at prices not too prohibitive, yet does not seem to have satisfied the public, the architects or the representatives of the authorities to any great degree. Until a short time ago the general idea was to undertake the reconstruction of the small towns and villages with light buildings and houses of a more or less temporary nature, such as timber framing with double wood lining, or filling in with plaster slabs or patent composition blocks. However, on further consideration it was found that the cost of these more or less temporary houses and buildings, taking into account the very high prices of timber in France and the present cost of plaster and like materials, would not correspond to the real efficient value and durability of the buildings when their initial cost was taken into account. It therefore seems to be the general opinion that it would be better and more advantageous to build at once, where opportunities allow, with more durable materials, necessitating possibly a higher first cost, but having the advantage over the lighter buildings of not requiring pulling down in a few years time, with the consequent disorganisation of the villages for rebuilding work.

No doubt in certain villages, where the returning population will require almost immediate roof-covering, in certain agricultural districts and others where the return to work will be an urgent necessity, temporary houses and buildings will preponderate for the time being. But in most other cases there will probably be no great hurry for reconstruction, and time and consideration will be taken for methodical rebuilding work. In nearly all the villages the mairie, or town hall, the post office, and the school buildings will be at once erected and be of a temporary nature, and in those villages where temporary building is considered a necessity, the houses will for the time being be erected on the outskirts of the villages, so as not to interfere with the new recensement of the various properties and the final reconstruction. In the small towns and villages undue hurry would cause endless trouble, for the new plans, if a new arrangement of the village is suggested, would have to be very carefully studied and prepared, and every property holder consulted, for all the ground in France is freehold and chiefly owned by small holders, some of whom might object to any modification of their properties. In certain towns the question of reconstruction would be easier, for the authorities would no doubt be able to expropriate land useful for the new scheme of rebuilding.

As stated in an article in "The Architect" of July 28 last, the number of Communes which have suffered from the effects of the war up to the time of the Allied offensive of last July was nearly 800, and the number of buildings which have suffered was nearly 43,000, of which 17,000 are completely destroyed, the remainder being only partially destroyed. About 2,500 Communes were still occupied by the enemy, and when the unfortunately destructive effects of the offensive has to be taken into account, the number of villages and houses completely or partially destroyed will number many thousands.

Many inquiries have come to Paris, and there is already a small wave of inquiries in the English Building Press as to the prospect of business on the Continent as regards building work and building materials after the

cessation of hostilities. France has suffered and is still suffering very greatly from the occupation by the enemy of her most important manufacturing centres. The Briey district behind Verdun, containing nine-tenths of the iron mines of France, has been occupied by the enemy almost since the commencement. In the North of France the foundries and factories are still under enemy occupation. The mobilisation order at the outbreak of hostilities deprived the building world and the engineering world of all their workers for civil and private work. The architects were called up at once, even those of mature age, to fulfil some duty or another, and their draughtsmen were already in uniform. The builders were deprived of their staff and nearly all their workmen, and on the day after the order of mobilisation all building work was abandoned, the offices and yards were closed and private work became impossible.

It is only since the past three or four months that some building work has been resumed at Paris, but in a small proportion only. The buildings which were nearly completed on the outbreak of war, especially buildings to be devoted to business purposes, are now being completed. Other buildings, especially those of the "immeuble" kind, or apartment buildings, which in many cases had only just been commenced, remain in the same state to-day as over two years ago. Some of these are becoming almost picturesque in their state of abandonment, with their half-completed arches and vaults becoming green with moss and vegetation. Contracts have been broken and others left in abeyance by reason of the moratorium, and the landowners who had started building on their own ground are loth to continue until they can become more assured as to the position of business, the value of rentals, and the rate of taxation after peace is declared. Some of them prefer to leave the commenced building entirely in abeyance, and trust to the future value of their ground for better or for worse.

The cost of building materials is very high at Paris at present, and it is very probable that there will be no new work for some time in the way of private work; business premises will, however, be resumed. Architects and builders will have to rely chiefly on the work they can obtain for the reconstruction of the devastated areas. Steel is almost out of the question for private work, timber is almost double in price; cement, lime, bricks, and those materials requiring manual labour for their extraction, or coal and machinery for their manufacture, are very costly.

It will take France some little time to recover from the effects of the invasion, for she will have to re-equip her works and factories, reconstruct a very large proportion of them, and also have to wait patiently until the demobilisation will allow the return of labour. It does not seem probable that there will be any labour troubles in France; all those who have been either fighting or doing war work at soldiers' or mobilisation pay will only be too glad to return to their ordinary occupations at the same or perhaps, if circumstances allow, a slightly higher rate of pay.

English builders, merchants, and others will, therefore, have an opportunity of doing some work, or of sending supplies of materials to France. Freights will, however, probably remain high for some time to come, and, if the existing Customs duties hold good after the war, it is doubtful whether English building materials could be delivered into France at a much less cost than the home products. Our manufacturers and merchants will find a greater scope in the way of useful specialities; handy materials which require special manufacture. It must be remembered that France will naturally do her best to protect her own workers and business men, and help to compensate them for the troubles and deprivation of work they have undergone. Contracts will naturally be given in preference to French firms and business men, with the probable option of their going to an allied country for help in the way of capital, materials, and labour. To do good business with our French allies we shall have to take many things into account, their posi-

tion after the war, their temperament and their ways of doing business, and not try to force on them our own ways of business, which, however excellent in our own country, may not always be to the manner of our friends abroad.

### THE TRAINING OF BUILDING TEACHERS.

In our issue of September 3, 1915, we published a short account of an interesting experiment inaugurated by the Board of Education, which took the form of a short summer course for building teachers.

The experiment was so successful last year, and the urgency of technical training is becoming so insistent, that it was decided to arrange a similar course this year, and we note that this year's course has recently been completed. It was held from July 31 to August 12 at the Municipal College, Bournemouth, under the direct supervision of Mr. Hugh Davies, His Majesty's Inspector of Building Schools. Some thirty teachers of building subjects were selected and attended daily to receive instruction in the methods of presenting such matter as might suitably be included in a senior course of evening technical instruction.

The work of the summer course followed closely upon the lines laid down last year, keeping fully in view the main object, which was to give guidance and help in the selection of examples to qualified teachers rather than to impart information.

Many of the teachers selected to attend last year's course having taken up military duties, the remaining few were able to carry their studies further and did much valuable practical work in greater detail than was possible last year. The larger number, some twenty-two building teachers selected from all over the country, devoted their attention mainly to the grouping, selection of subject-matter and class procedure, as well as some detail work in the nature of practical experiments and problems.

The subjects of the grouped course were the same as last year and included building construction and drawing, building mathematics and geometry, and building science, and the lecturers in these subjects were respectively Mr. W. R. Jaggard, F.R.I.B.A., of the Northern Polytechnic Institute, London; Mr. F. E. Drury, F.I.S.E., head of the Building and Civil Engineering Department of the Royal Technical Institute, Salford; and Mr. A. R. Sage, vice-principal of the London County Council School of Building at Brixton, London, who was assisted by Mr. A. Everett, B.Sc., also of the Brixton School of Building. Mr. W. Munn Rankin, B.Sc., the headmaster of the Municipal Technical College at Bournemouth, acted as secretary to the course.

The architectural aspect of the teaching of building construction and the selection of pleasing and well-proportioned examples of standard items of construction was mainly dwelt upon by the lecturer on this subject, and the great need for the improvement in the quality of draughtsmanship was emphasised and illustrated by some sixty carefully prepared drawings graded to suit the progressive stages of the course. The study of architecture and architectural history was recommended to the teachers as in itself a fascinating study, but also as a means of developing a sense of good taste in design and as being conducive to a proper appreciation of the dignity of building.

Building teachers usually treat the subject of practical geometry adequately, but building mathematics, on the other hand is often neglected, and this lack of knowledge is to the student a very severe handicap in the more advanced work in connection with the larger constructional problems. The lecturer in these subjects dealt with the fundamental ground-work necessary for building students, and aimed at impressing the teachers with the building treatment and scope of algebra and calculations for specialised work. Free use was made of some interesting models and apparatus, and the lecturer also showed the close relationship existing between the subjects of geometry and mathematics as applied to building.

For the purpose of this course, the subject of building

science has been formed by adding some knowledge of physics and chemistry to the older subject of building mechanics. It may be considered a new venture in building instruction, which must undoubtedly develop and will prove of great value in training students in the principles of the conduct of further research work in building problems.

The underlying facts forming a foundation for future work were treated by the lecturers, partly by a large collection of practical experiments and partly by lectures, each teacher in attendance being able to carry out those experiments most suited to his needs, and all being definitely related to building matters.

Educational visits were arranged to Wimborne Minster and to Messrs. Carter & Co.'s Ceramic Works at Poole, and many impromptu discussions led to the interchange of ideas and the solution and ventilation of special difficulties.

Much enthusiasm was engendered by the course, and it is hoped that the experiment inaugurated by the Board of Education last year, and continued with success this year, will eventually become the starting point for the thorough training of a body of men who will realise that the art and science of building is of the very greatest importance to the future well-being of the British nation.

### THE FOUNTAIN-HEAD OF EUROPEAN CIVILISATION.\*

(Concluded from last week.)

THE continuity of human tradition as a whole in areas geographically connected like Eurafica on the one side and Eurasia on the other has been here postulated. Since, as we have seen, the Late Palæolithic culture was not violently extinguished but shows signs of survival both North and South, we are entitled to trace elements of direct derivation from this source among the inherited acquirements that finally led up to the higher forms of ancient civilisation that arose on the Nile and the Euphrates. In many directions, we may believe, the flaming torch had been carried on by the relay runners.

But what, it may be asked, of Greece itself, where human culture reached its highest pinnacle in the Ancient World and to which we look as the principal source of our own civilisation?

Till within recent years it seemed almost a point of honour for classical scholars to regard Hellenic civilisation as a wonder-child, sprung, like Athena herself, fully panoplied from the head of Zeus. The indebtedness to Oriental sources was either regarded as comparatively late or confined to such definite borrowings as the alphabet or certain weights and measures. Egypt, on the other hand, at least till Alexandrine times, was looked on as something apart, and it must be said that Egyptologists on their side were only too anxious to preserve their sanctum from profane contact.

A truer perspective has now been opened out. It has been made abundantly clear that the rise of Hellenic civilisation was itself part of a wider economy, and can be no longer regarded as an isolated phenomenon. Indirectly, its relation to the greater world and to the ancient centres to the South and East has been now established by its affiliation to the civilisation of pre-historic Crete and by the revelation of the extraordinarily high degree of proficiency that was there attained in almost all departments of human art and industry. That Crete itself—the "Mid-Sea land," a kind of halfway house between three continents—should have been the cradle of our European civilisation was, in fact, a logical consequence of its geographical position. An outlier of

\* Presidential Address by Sir Arthur Evans, D.Litt., LL.D., P.S.A., F.R.S., Extraordinary Professor of Prehistoric Archaeology, Oxford; Correspondant de l'Institut de France, &c., at the Newcastle-on-Tyne, 1916, Meeting of the British Association for the Advancement of Science.

Mainland Greece, almost opposite the mouths of the Nile, primitive intercourse between Crete and the further shores of the Libyan Sea was still further facilitated by favourable winds and currents. In the Eastern direction, on the other hand, island stepping-stones brought it into easy communication with the coast of Asia Minor, with which it was actually connected in late geological times.

But the extraneous influences that were here operative from a remote period encountered on the island itself a primitive indigenous culture that had grown up there from immemorial time. In view of some recent geological calculations, such as those of Baron De Geer, who by counting the number of layers of mud in Lake Ragunda has reduced the ice-free period in Sweden to 7,000 years, it will not be superfluous to emphasise the extreme antiquity that seems to be indicated for even the later Neolithic in Crete. The Hill of Knossos, upon which the remains of the brilliant Minoan civilisation have found their most striking revelation, itself resembles in a large part of its composition a great mound or Tell—like those of Mesopotamia or Egypt—formed of layer after layer of human deposits. But the remains of the whole of the later Ages represented down to the earliest Minoan period (which itself goes back to a time contemporary with the early Dynasties of Egypt—at a moderate estimate to 3400 B.C.) occupy considerably less than a half—19 feet, that is, out of a total of over 45. Such calculations can have only a relative value, but, even if we assume a more rapid accumulation of debris for the Neolithic strata and deduct a third from our calculation, they would still occupy a space of over 3,400 years, giving a total antiquity of some 9,000 years from the present time.\* No Neolithic section in Europe can compare in extent with that of Knossos, which itself can be divided by the character of its contents into an Early, Middle, and Late phase. But its earliest stratum already shows the culture in an advanced stage, with carefully ground and polished axes and finely burnished pottery. The beginnings of Cretan Neolithic must go back to a still more remote antiquity.

The continuous history of the Neolithic Age is carried back at Knossos to an earlier epoch than is represented in the deposits of its geographically related areas on the Greek and Anatolian side. But sufficient materials for comparison exist to show that the Cretan branch belongs to a vast Province of primitive culture that extended from Southern Greece and the Ægean islands throughout a wide region of Asia Minor and probably still further afield.

An interesting characteristic is the appearance in the Knossian deposits of clay images of squatting female figures of a pronouncedly steatopygous conformation and with hands on the breasts. These in turn fit on to a large family of similar images which recur throughout the above area, though elsewhere they are generally known in their somewhat developed stage, showing a tendency to be translated into stone, and finally—perhaps under extraneous influences both from the North and East—taking a more extended attitude. These clearly stand in a parallel relationship to a whole family of figures with the organs of maternity strongly developed that characterise the Semitic lands and which seem to have spread from there to Sumeria and to the seats of the Anau culture.

At the same time this steatopygous family, which in other parts of the Mediterranean basin ranges from pre-historic Egypt and Malta to the North of Mainland Greece, calls up suggestive reminiscences of the similar images of Aurignacian Man. It is especially interesting to note that in Crete, as in the Anatolian region where these primitive images occur, the worship of a Mother Goddess predominated in later times, generally associated with a divine Child—a worship which later survived in a classical guise and influenced all later religion. Another

interesting evidence of the underlying religious community between Crete and Asia Minor is the diffusion in both areas of the cult of the Double Axe. This divine symbol, indeed, or "Labrys," became the special emblem of the Palace sanctuary of Knossos itself, which owes to it its traditional name of Labyrinth. I have already called attention to the fact that the absorptive and disseminating power of the Roman Empire brought the cult of a male form of the divinity of the Double Axe to the Roman Wall and to the actual site on which Newcastle stands.

The fact should never be left out of sight that the gifted indigenous stock which in Crete eventually took to itself on one hand and the other so many elements of exotic culture was still deep-rooted in its own. It had, moreover, the advantages of an insular people in taking what it wanted and no more. Thus it was stimulated by foreign influences but never dominated by them, and there is nothing here of the servility of Phœnician art. Much as it assimilated, it never lost its independent tradition.

It is interesting to note that the first quickening impulse came to Crete from the Egyptian and not from the Oriental side—the Eastern factor, indeed, is of comparatively late appearance. My own researches have led me to the definite conclusion that cultural influences were already reaching Crete from beyond the Libyan Sea before the beginning of the Egyptian Dynasties. These primitive influences are attested, amongst other evidences, by the forms of stone vessels, by the same æsthetic tradition in the selection of materials distinguished by their polychromy, by the appearance of certain symbolic signs, and the subjects of shapes and seals which go back to prototypes in use among the "Old Race" of the Nile Valley. The impression of a very active agency indeed is so strong that the possibility of some actual immigration into the island of the older Egyptian element, due to the conquests of the first Pharaohs, cannot be excluded.

The continuous influence of Dynastic Egypt from its earliest period onwards is attested both by objects of import and their indigenous imitations, and an actual monument of a Middle Empire Egyptian was found in the Palace Court at Knossos. More surprising still are the cumulative proofs of the reaction of this early Cretan civilisation on Egypt itself, and seen not only in the introduction there of such beautiful Minoan fabrics as the elegant polychrome vases, but in the actual impress observable on Egyptian art even on its religious side. The Egyptian griffin is fitted with Minoan wings. So, too, on the other side we see the symbols of Egyptian religion impressed into the service of the Cretan Nature Goddess, who in certain respects was partly assimilated with Hathor, the Egyptian Cow-Goddess of the Underworld.

My own most recent investigations have more and more brought home to me the all-pervading community between Minoan Crete and the land of the Pharaohs. When we realise the great indebtedness of the succeeding classical culture of Greece to its Minoan predecessor the full significance of this conclusion will be understood. Ancient Egypt itself can no longer be regarded as something apart from general human history. Its influences are seen to lie about the very cradle of our own civilisation.

The high early culture, the equal rival of that of Egypt and Babylonia, which thus began to take its rise in Crete in the fourth millennium before our era, flourished for some two thousand years, eventually dominating the Ægean and a large part of the Mediterranean basin. To the civilisation as a whole I ventured, from the name of the legendary King and law-giver of Crete, to apply the name of "Minoan," which has received general acceptance; and it has been possible now to divide its course into three Ages—Early, Middle, and Late, answering roughly to the successive Egyptian Kingdoms, and each in turn with a triple sub-division.

It is difficult indeed in a few words to do adequate justice to this earliest of European civilisations. Its achievements are too manifold. The many-storeyed palaces of the Minoan priest-kings in their great days, by their ingenious planning, their successful combination

\* For a fuller statement I must refer to my forthcoming work, "The Nine Minoan Periods" (Macmillans), Vol. I.: Neolithic Section.



of the useful with the beautiful and stately, and, last but not least, by their scientific sanitary arrangements, far outdid the similar works, on however vast a scale, of Egyptian or Babylonian builders. What is more, the same skilful and commodious construction recurs in a whole series of private mansions and smaller dwellings throughout the island. Outside "broad Knossos" itself flourishing towns sprang up far and wide on the country sides. New and refined crafts were developed, some of them, like that of the inlaid metal-work, unsurpassed in any age or country. Artistic skill, of course, reached its acme in the great palaces themselves, the corridors, landings, and porticoes of which were decked with wall paintings and high reliefs, showing in the treatment of animal life not only an extraordinary grasp of Nature, but a grandiose power of composition such as the world had never seen before. Such were the great bull-grappling reliefs of the Sea Gate at Knossos and the agonistic scenes of the great Palace hall.

The modernness of much of the life here revealed to us is astonishing. The elaboration of the domestic arrangements, the staircases storey above storey, the front places given to the ladies at shows, their fashionable flounced robes and jackets, the gloves sometimes seen on their hands or hanging from their folding chairs, their very mannerisms as seen on the frescoes, pointing their conversation with animated gestures—how strangely out of place would it all appear in a classical design! Nowhere, not even at Pompeii, have more living pictures of ancient life been called up for us than in the Minoan Palace of Knossos. The touches supplied by its closing scene are singularly dramatic—the little bath-room opening out of the Queen's parlour, with its painted clay bath, the royal draught-board flung down in the court, the vessels for anointing and the oil-jar for their filling ready to hand by the throne of the Priest-King, with the benches of his Consistory round and the sacral griffins on either side. Religion, indeed, entered in at every turn. The palaces were also temples, the tomb a shrine of the Great Mother. It was perhaps owing to the religious control of art that among all the Minoan representations—now to be numbered by thousands—no single example of indecency has come to light.

A remarkable feature of this Minoan civilisation cannot be passed over. I remember that at the Liverpool meeting of this Association in 1896—just before the first results of the new discoveries in Crete were known—a distinguished archaeologist took as the subject of an evening lecture "Man before Writing," and, as a striking example of a high culture attained by "Analfabeti," singled out that of Mycenæ—a late offshoot, as we know now, from Minoan Crete. To such a conclusion, based on negative evidence, I confess I could never subscribe—for had not even the people of the Reindeer Age attained to a considerable proficiency in expression by means of symbolic signs? To-day we are able to trace the gradual evolution on Cretan soil of a complete system of writing from its earliest pictographic shape, through a conventionalised hieroglyphic to a linear stage of great perfection. In addition to inscribed sealings and other records some two thousand clay tablets have now come to light, mostly inventories or contracts; for though the script itself is still undeciphered the pictorial figures that often appear on these documents supply a valuable clue to their contents. The enumeration also is clear, with figures representing sums up to 10,000. The inscribed sealings, signed, counter-marked, and counter-signed by controlling officials, give a high idea of the elaborate machinery of Government and administration under the Minoan rulers.

The minutely organised legal conditions to which this points confirm the later traditions of Minos, the great law-giver of prehistoric Crete, who, like Hammurabi and Moses, was said to have received the law from the God of the Sacred Mountain. The clay tablets themselves were certainly due to Oriental influences, which make themselves perceptible in Crete at the beginning of the

Late Minoan Age, and may have been partly resultant from the reflex action of Minoan colonisation in Cyprus. From this time onwards Eastern elements are more and more traceable in Cretan culture, and are evidenced by such phenomena as the introduction of chariots—themselves perhaps more remotely of Aryan-Iranian derivation—and by the occasional use of cylinder seals.

Simultaneously with its Eastern expansion, which affected the coast of Phœnicia and Palestine as well as Cyprus, Minoan civilisation now took firm hold of Mainland Greece, while traces of its direct influence are found in the West Mediterranean basin—in Sicily, the Balearic Islands, and Spain. At the time of the actual Conquest and during the immediately succeeding period the civilisation that appears at Mycenæ and Tiryns, at Thebes and Orchomenos, and at other centres of Mainland Greece, though it seems to have brought with it some already assimilated Anatolian elements, is still in the broadest sense Minoan. It is only at a later stage that a more provincial offshoot came into being to which the name Mycenaean can be properly applied. But it is clear that some vanguard at least of the Aryan Greek immigrants came into contact with this high Minoan culture at a time when it was still in its most flourishing condition. The evidence of Homer itself is conclusive. Arms and armour described in the poems are those of the Minoan prime. The fabled shield of Achilles, like that of Herakles described by Hesiod, with its elaborate scenes and variegated metal-work, reflects the masterpieces of Minoan craftsmen in the full vigour of their art; the very episodes of epic combat receive their best illustration on the signets of the great days of Mycenæ. Even the lyre to which the minstrel sang was a Minoan invention. Or, if we turn to the side of religion, the Greek temple seems to have sprung from a Minoan hall, its earliest pediment schemes are adaptations from the Minoan tympanum—such as we see in the Lions' Gate—the most archaic figures of the Hellenic Goddesses, like the Spartan Orthia, have the attributes and attendant animals of the great Minoan Mother.

Some elements of the old culture were taken over on the soil of Hellas. Others which had been crushed out in their old centres survived in the more Eastern shores and islands formerly dominated by Minoan civilisation, and were carried back by Phœnician or Ionian intermediaries to their old homes. In spite of the overthrow which about the twelfth century before our era fell on the old Minoan dominion and the onrush of the new conquerors from the North, much of the old tradition still survived to form the base for the fabric of the later civilisation of Greece. Once more, through the darkness, the lighted torch was carried on, the first glimmering flame of which had been painfully kindled by the old Cave dwellers in that earlier Palæolithic World.

The Roman Empire, which in turn appropriated the heritage that Greece had received from Minoan Crete, placed civilisation on a broader basis by welding together heterogeneous ingredients and promoting a cosmopolitan ideal. If even the primeval culture of the Reindeer Age embraced more than one race and absorbed extraneous elements from many sides, how much more is that the case with our own which grew out of the Greco-Roman! Civilisation in its higher form to-day, though highly complex, forms essentially a unitary mass. It has no longer to be sought out in separate luminous centres, shining like planets through the surrounding night. Still less is it the property of one privileged country or people. Many as are the tongues of mortal men, its votaries, like the Immortals, speak a single language. Throughout the whole vast area illumined by its quickening rays, its workers are interdependent, and pledged to a common cause.

We, indeed, who are met here to-day to promote in a special way the Cause of Truth and Knowledge, have never had a more austere duty set before us. I know that our ranks are thinned. How many of those who would otherwise be engaged in progressive research have been called

away for their country's service! How many who could least be spared were called to return no more! Scientific intercourse is broken, and its cosmopolitan character is obscured by the death struggle in which whole Continents are locked. The concentration, moreover, of the Nation and of its Government on immediate ends has distracted it from the urgent reforms called for by the very evils that are the root cause of many of the greatest difficulties it has had to overcome. It is a lamentable fact that beyond any nation of the West the bulk of our people remains sunk not in comparative ignorance only—for that is less difficult to overcome—but in intellectual apathy. The dull incuria of the parents is reflected in the children, and the desire for the acquirement of knowledge in our schools and colleges is appreciably less than elsewhere. So, too, with the scientific side of education, it is not so much the actual amount of Science taught that is in question—in-sufficient as that is—as the instillation of the scientific spirit itself—the perception of method, the sacred thirst for investigation.

But can we yet despair of the educational future of a people that has risen to the full height of the great emergency with which they were confronted? Can we doubt that, out of the crucible of fiery trial, a New England is already in the moulding?

We must all bow before the hard necessity of the moment. Of much we cannot judge. Great patience is demanded. But let us, who still have the opportunity of doing so, at least prepare for the even more serious struggle that must ensue against the enemy in our midst, that gnaws our vitals. We have to deal with ignorance, apathy, the non-scientific mental attitude, the absorption of popular interest in sports and amusements.

And what, meanwhile, is the attitude of those in power—of our Government, still more of our permanent officials? A cheap epigram is worn threadbare in order to justify the ingrained distrust of expert, in other words of scientific, advice on the part of our public offices. We hear, indeed, of "Commissions" and "Enquiries," but the inveterate attitude of our rulers towards the higher interests that we are here to promote is too clearly shown by a single episode. It is those higher interests that are the first to be thrown to the wolves. All are agreed that special treasures should be stored in positions of safety, but at a time when it might have been thought desirable to keep open every avenue of popular instruction and of intelligent diversion, the galleries of our National Museum at Bloomsbury were entirely closed for the sake of the paltriest saving—three minutes, it was calculated, of the cost of the War to the British Treasury! That some, indeed, were left open elsewhere was not so much due to the enlightened sympathy of our politicians, as to their alarmed interests in view of the volume of intelligent protest. Our friends and neighbours across the Channel, under incomparably greater stress, have acted in a very different spirit.

It will be a hard struggle for the friends of Science and Education, and the air is thick with mephitic vapours. Perhaps the worst economy to which we are to-day reduced by our former lack of preparedness is the economy of Truth. Heaven knows!—it may be a necessary penalty. But its results are evil. Vital facts that concern our national well-being, others that even affect the cause of a lasting Peace, are constantly suppressed by official action. The negative character of the process at work which conceals its operation from the masses makes it the more insidious. We live in a murky atmosphere amidst the suggestion of the false, and there seems to be a real danger that the recognition of Truth as itself a Tower of Strength may suffer an eclipse.

It is at such a time and under these adverse conditions that we, whose object it is to promote the Advancement of Science, are called upon to act. It is for us to see to it that the lighted torch handed down to us from the Ages shall be passed on with a still brighter flame. Let us champion the cause of Education, in the best sense of the word, as having regard to its spiritual as well as its scientific side. Let us go forward with our own tasks,

unflinchingly seeking for the Truth, confident that, in the eternal dispensation, each successive generation of seekers may approach nearer to the goal.

MAGNA EST VERITAS, ET PREVALEBIT.

## HISTORIC BUILDINGS IN THE WESTERN WAR ZONE: THEIR BEAUTY AND THEIR RUIN.\*

By the Rev. G. HERBERT WEST, D.D., A.R.I.B.A.,  
Author of "Gothic Architecture in England and France."

BELGIUM.

(Continued from last week.)

By the machinations of Louis XI. Liège and Dinant were incited to revolt against their Bishop, Louis of Bourbon, nephew of Philippe le Bon. The people of Dinant hated the people of Bovignes on the other side of the Meuse, and hanged an envoy whom they sent across, and put up a dummy of Charles with a placard, "Tell your old mummy of a Duke to go home again. Louis of France is coming to help us." Then Bovignes fired a dummy of Louis XI. across to Dinant from a catapult. The Dinantais refused to apologise, but instead had a parody of the "Joyeuse Entrée" of Charles. So Charles, with an immense artillery of very heavy guns, besieged and took the city almost at once. It was a surprise to the world very like that of the fall of Liège and Namur in 1914. The Liégeois were sending help, but it came too late, as some other help did in 1915. Dinant was sacked and utterly destroyed; 800 citizens were tied back to back and thrown into the river, others were thrown from the cliffs. But no outrages on women were allowed, and all offenders were hung in sight of the army. Charles has been beaten in barbarity by the Kaiser (August 28-30, 1914). Next year Charles entered Liège through the wall which was thrown down for him, and fined the city 115,000,000 florins and tortured nine chief citizens to death. Shortly after, acting on a false report that the Liégeois had killed their Bishop, he came again, bringing with him Louis XI., whose promise of help was the cause of all the trouble. He took the city in a week, and asked Louis what he should do. Louis replied: "My father was troubled with rooks. He destroyed the nests three times, but they built again, so he had the tree cut down." Charles then systematically burned the town and killed all the inhabitants. The few who escaped were being still hunted down in the woods three months after. His general, Antoine de Loisey, writing from Liège says: "We don't trouble about justice. We just hang or burn anyone we come across. The city has been so utterly wrecked that there is not a scrap of paper left to write on. I had to tear this from an old book." There was therefore nothing old left in Dinant when the Huns destroyed it last year; but in Liège the Bishop rebuilt his palace in 1508. That and the church of St. Jacques were the only important old buildings in the huge manufacturing city which Liège was before the war.

In 1447 Charles was defeated and killed at Nancy by what he called "the contemptible little army" of Swiss tailors and cobblers, and his body was found two days afterwards, half eaten by wolves, in a frozen ditch.

Louis XI. at once treacherously laid siege to Arras, and, in spite of the piteous appeals of his goddaughter—Mary of Burgundy, Charles's heiress—took it and completely sacked it. Consequently, as might be expected, very few houses older than the fifteenth century were left.

Mary of Burgundy died just after she had married Maximilian, King of the Romans, afterwards Emperor. Maximilian soon got into money troubles with the people of Ghent and Bruges. The latter, discovering that he

\* The first of three lectures delivered before the Royal Society of Arts.

had sent for an army from Germany, kept him prisoner in 1487 for eleven weeks in the Craenenberg, the windows of which they fitted with bars, for which the bills still exist. All his German followers were executed one by one, except one who escaped, disguised as a peasant woman carrying a basket of onions. They might have spared all the others, if only they had hanged that one, for he was the Count of Zollern, ancestor of the Kaiser.

In 1497 Maximilian's son Philip was married to Joan, the heiress of Spain, at Lierre, in front of its beautiful choir screen. In 1506 Philip died and poor Joan went mad with grief. Margaret of Austria, her husband's sister, became Regent till the infant Charles V. was of age. He was the most powerful monarch of his time, and no king has ever held so many titles, but failing health made him long for release from the burden of empire. There never probably was any scene more striking in the world's history than that which took place on October 25, 1555, in the Hall of the Golden Fleece in Brussels. Crippled with gout, leaning on the shoulder of William of Orange (the Silent), he told the story of his reign, confessed his faults, and begged forgiveness of any he had wronged, and then placing his hands on his son's head, gave him his blessing and sank back sobbing in his chair, while all the audience were moved to tears. He went to live in a small house in Brussels for a year, and then retired to the Monastery of St. Juste in Spain, where he filled his rooms with clocks and watches which he tried in vain to make keep time, and when he failed he said: "All my life I have been trying to make men work together and I can't even make clocks do it." He indulged in one even more impressive ceremony, his own funeral Mass, which he had carried out as if he had been inside the coffin which stood in front of him.

Time would fail if we tried to give any account of the horrible persecution of the Protestants carried out by his mean and cold-blooded son Philip. It is fully told in the fascinating pages of Motley's histories.

The chief adviser of the Regent, who was Philip's half-sister, Margaret of Parma, was Cardinal Granvelle, Archbishop of Malines, whose tyranny roused the three chief nobles who had so far been on Philip's side, to send a letter protesting against it. They were Count Egmont, who had greatly distinguished himself in the battles of Gravelins, and of St. Quentin on St. Laurence's Day, 1557, when by his strategy the French army was practically annihilated, and Philip, in his joy, had ordered the building of the Escorial. The other two signatories were Count Horn and William the Silent, Prince of Orange, the greatest man of the three. Philip, on receipt of the letter, sent the Duke of Alva to be Governor of the Netherlands with orders to arrest and execute Egmont, Horn and William within twenty-four hours of his arrival. William at once took refuge in Holland, and Egmont said to him, "Farewell, landless Prince," to which William replied, "Farewell, headless Count!" Counts Egmont and Horn were executed in front of the guild house of the Crossbowmen (Maison du Roi) at Brussels, June 5, 1568. The building was greatly damaged in the bombardment by Louis XIV., and rebuilt in the style of that time. It has been recently restored according to the original design, so it is said, but all the character and history have been taken out of it, as so often happens with restorations. Four years later, Alva all but seized William by a night attack, in which he was saved by his little spaniel, who, hearing strange footsteps woke his master by scratching his face and barking. Alva wreaked his vengeance on Mons and Malines, both of which he sacked, and the horrors perpetrated in the latter town would have been incredible if they had not been surpassed to-day. But even Alva did not wreak his vengeance on churches. It was reserved for the Germans to destroy the cathedral and its wonderful tower of St. Rombauld, which was begun in 1452, but discontinued after the sack when it had

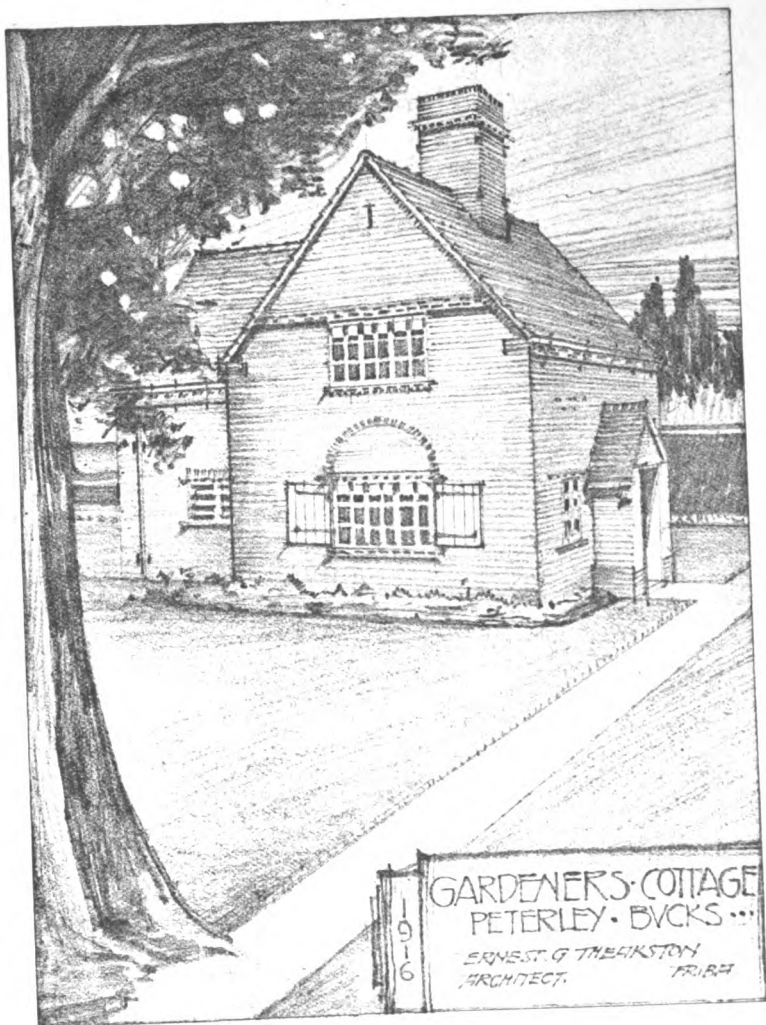
reached only 320 feet out of the 544 feet which Jan Kelderman had intended it to have. The town hall was never finished from the same cause.

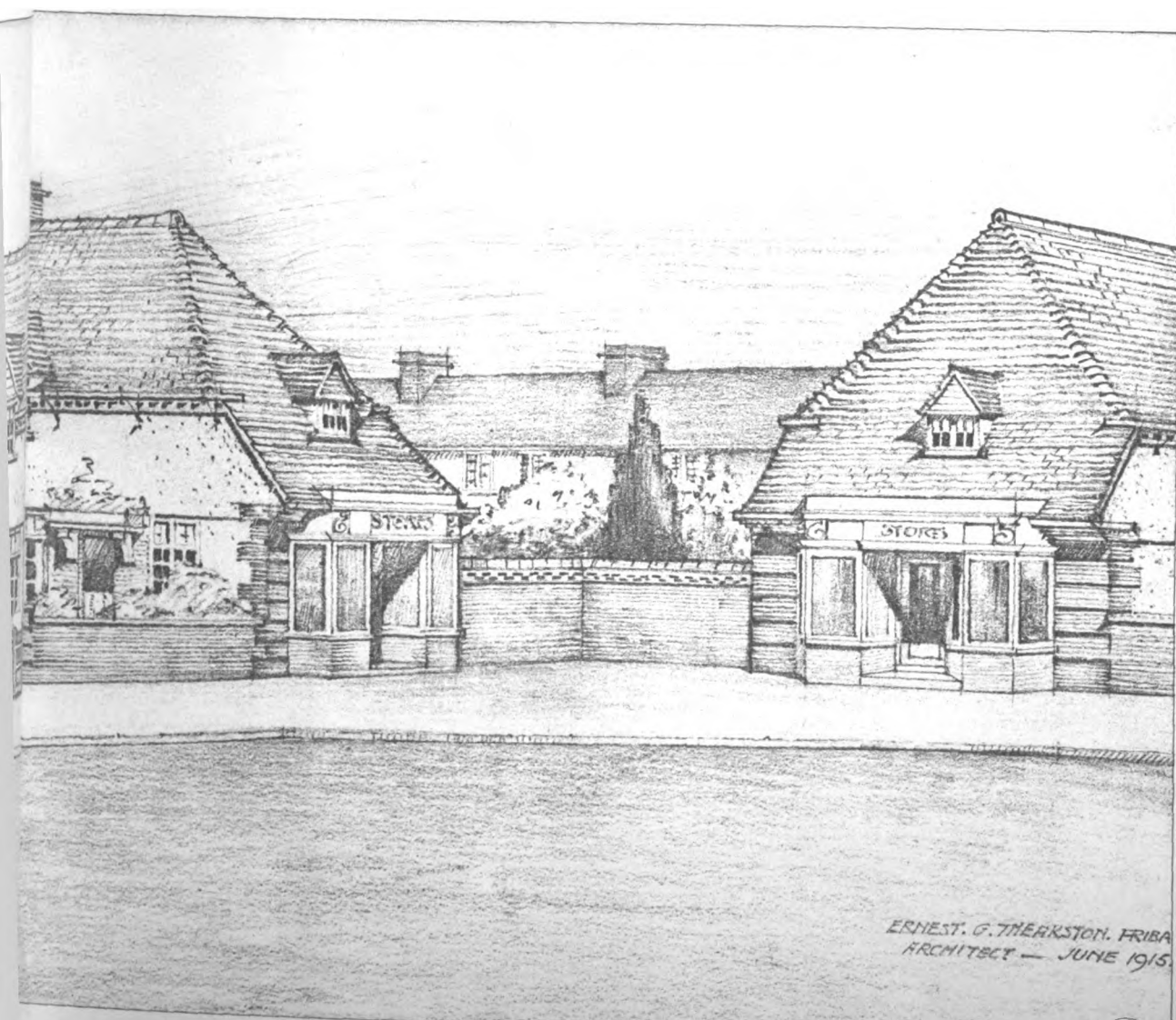
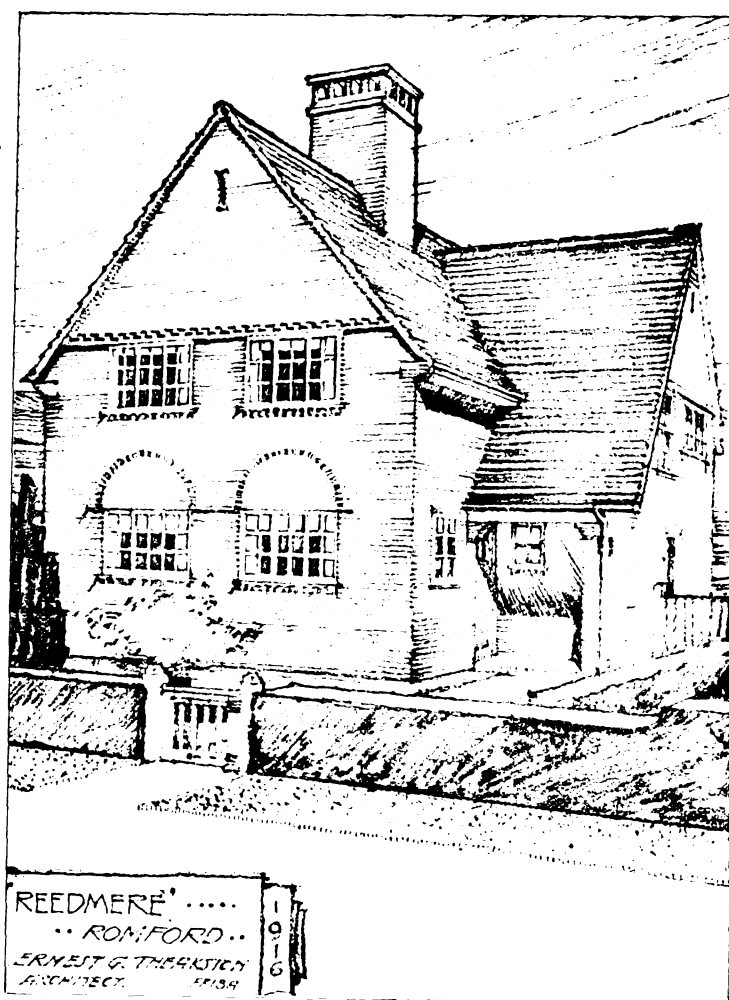
But Malines was not the only town which the Spaniards sacked. In 1576 for three days Antwerp was given over to what is still known as the Spanish Fury. More than 6,000 men, women and children were butchered and 800 houses burnt. Antwerp had risen into importance when the silting up of the Zwyn had caused the decay of Bruges in the early fifteen hundreds, and consequently there are no very important buildings of a much earlier date. Also Antwerp suffered more than any other city from the image-breaking of the Calvinists in 1566. The cathedral especially had been wrecked by them. It had been begun in 1352, and the tower had been carried as high as the first gallery by 1440. At the end of the sixteenth century the Keldermans planned a magnificent cathedral, but had only finished one tower when a fire destroyed all the material which they had collected and the funds had to be used for rebuilding. The town hall, which is a fine specimen of the late Flemish style from which our Jacobean was derived, was built in 1561.

But let us return to Brussels. Comparatively little remains of the Brussels which saw the execution of Egmont and Horn, except the town hall, which is the finest of all the town halls in Belgium. Brussels had never been a manufacturing city like Ghent and Bruges, so its town hall was from the first really a town hall, not the abode of the guilds or four "nations" who arose much later at Brussels than elsewhere. The guilds had their separate houses which, picturesque as they are, date only from the beginning of the eighteenth century. They are those of the mercers, shippers, archers, carpenters, printers, and bakers. The town hall was begun in 1402, and by the middle of the century the east wing and tower were finished. The tower then stood as an angle tower on the north-west corner. The architect Van den Berg is said to have thrown himself from the top of the tower in 1431, because he found out then that he had not put it in the middle of the façade, but as the tower had not then been begun and the east wing was not finished till 1486, the legend lacks foundation. Some of the work is of the sixteenth hundreds, more of the seventeenth, after the bombardment. It was from Brussels and Louvain, with their constant repetition of similar bays, that Sir Charles Barry got his inspiration for the Houses of Parliament. Let us, therefore, now look at Louvain Town Hall, the only building which the Huns have left in that once beautiful city. The architect, Matt. de Layens, was appointed in 1448, on the death of John Kelderman, with a salary of thirty gold florins and enough cloth to make him a dress suit. He was to follow in the main the design of the Brussels Town Hall, which then consisted of only one wing and had no tower. Louvain was to surpass Brussels, and so it did, and perhaps that is why Brussels finished her tower and added another wing. "And yet one cannot but feel as one stands before this fascinating and fantastic structure with its crowd of statues, its dainty corbels, its bristling roof and filigree niches, its pinnacles soaring to heaven like crystallised incense smoke, that it is less the triumph of the mason than of the sculptor; that architecture has ceased to reign; and that one of her handmaids has usurped her place." This is the character of all the late civic buildings of Belgium. And it is the more striking when we look at the churches, which are singularly plain in the interior as well as in the exteriors, which are hardly ever finished. To be fair, let us look at the cathedral of St. Gudule. Nothing really is known of the saint, who is said to have lived about A.D. 712. Even her German biographer who wrote in 1047 tells nothing, because, with unusual candour, he says he thinks it a holier thing to keep silence than to tell lies—an opinion not shared by his descendants. It is a dis-

















ISLAND BUILDINGS, MOUNT  
MR. PAUL WATERHOUSE, N.A.

(Royal Academy Exhibition, 1916.)

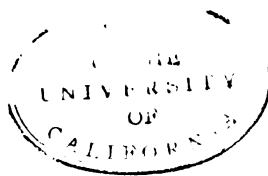




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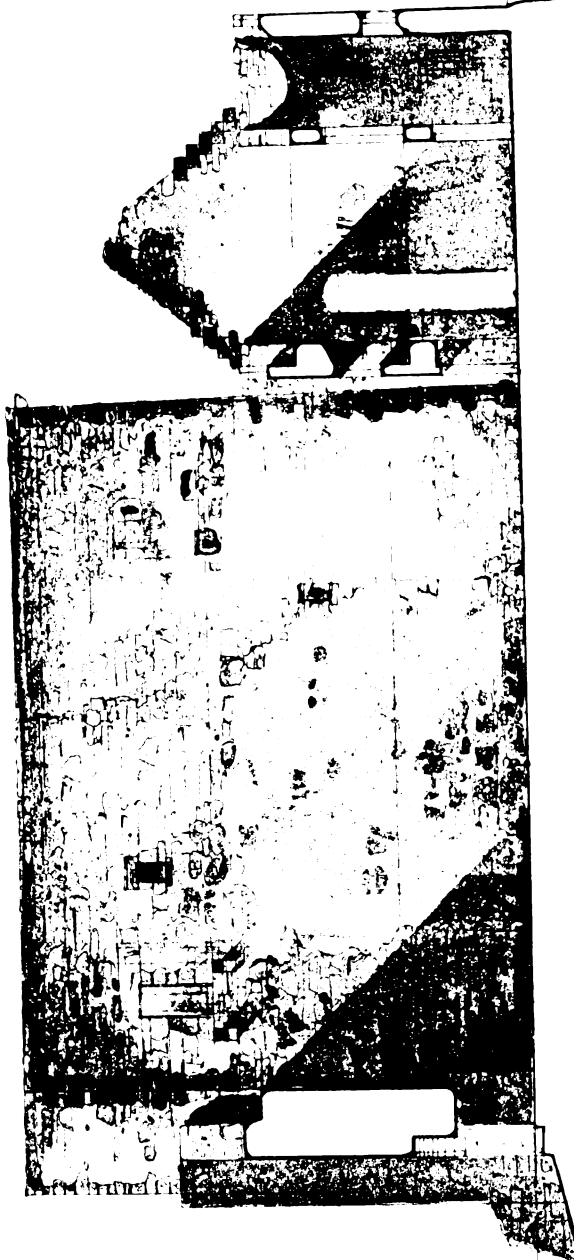






The Architect, Sept. 22<sup>nd</sup> 1916.

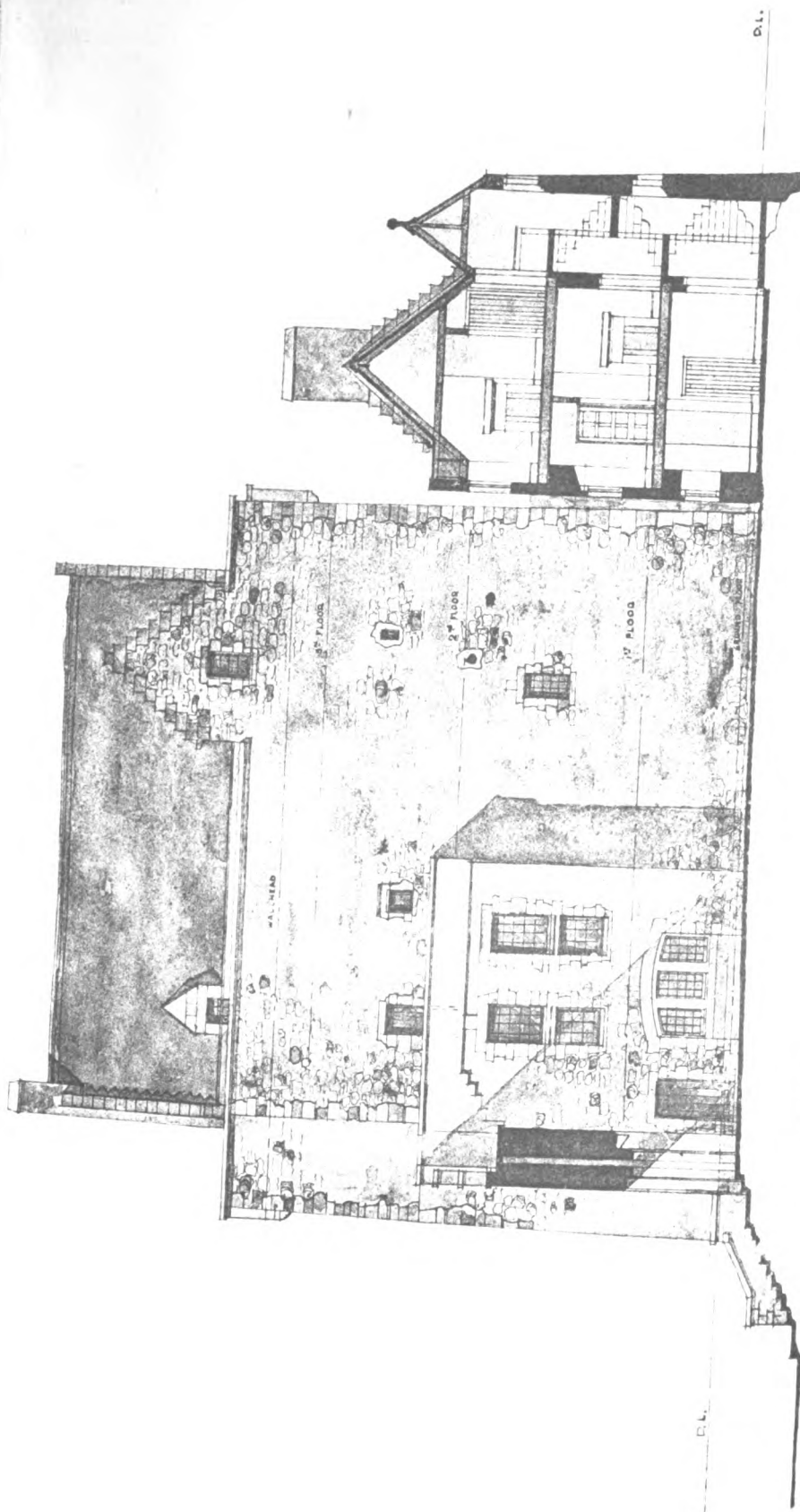
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239 S VINCENT ST GLASGOW.

SCALE OF "THIRTY-FOOT" FEET



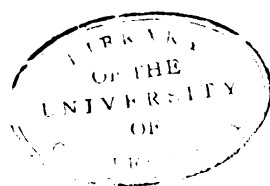
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appointing building, the exterior cold and dry with hard vertical lines; not for a moment can one think of it in the same line as Paris or Rheims, or even Abbeville. The chancel dates from 1273; the nave was finished by 1446, and the towers by the beginning of the fifteenth centuries. The finest thing in the church is the late Renaissance work, and especially the stained glass. Nearly all the windows contain portraits of the later rulers of Brabant, and most of them were designed by Bernard van Orley.

Of the other buildings of Brussels, about the most interesting is the church of Notre Dame du Sablon. It was originally, and indeed is still, the chapel of the Guild of the Crossbowmen, the one guild which still survives in Brussels. The Calvinists would have destroyed it, but when they found it full of crossbowmen they retired, after relieving their feelings, according to the manner of crowds, by howling outside. It was begun in 1419, and took more than a century to build, but, as usual, the original plans were kept to throughout.

The chief cause of there being less to see in Brussels than in most of the other towns of Brabant is not only that, like them, it rose to importance at a later date than the Flemish towns, but that it was almost destroyed by Louis XIV., who bombarded it in 1695 with red-hot bullets and destroyed sixteen churches and over four thousand houses. He was in many respects the prototype of the Kaiser, and we English may take courage from the thought that though for fifty-two years he had never lost a battle nor failed to take a fortress, it was our William III., who had never till then won a battle nor taken a fortress, who in that year, by taking Namur, checked the career of that would-be world conqueror. It was in revenge for Namur that Louis bombarded Brussels—a truly Hunnish proceeding both in its barbarity and its utter futility, but less vile than the burning of Louvain.

But let us, before we leave the Brussels which he ruined as the Germans have ruined Louvain, go, as all tourists do, to Waterloo, and there, standing on the Lion Mount and gazing back over the history and the battlefields of Belgium, gain for ourselves an unswerving confidence in the justice of Him who ruleth over the kingdom of men and giveth it to whomsoever He will. Never yet has it been seized for long by a would-be world conqueror. All the nations of the world, not only the Jews, have been people chosen to carry out some work for Him—and time after time the work set to England has been to destroy the power of the Nebuchadnezzars of the modern world, not that she may ape their pride, but may learn the humility which they were taught—Philip II. and the Duke of Parma in the Armada; Louis XIV. at Namur and Audenarde; Napoleon at Waterloo—always on the battlefields of Belgium. Let us then, standing there, take good courage for the Future from the Past.

### MUSIC HALL BUILDING IN PARIS DURING THE WAR.

THE Société des Music Halls Parisiens, Mr. Alfred Butt, director, is building a new music hall in the rue de Mogador, Paris, in the quarter of the Paris Opera House. This building, commenced in June of last year, has now been raised to roof level, and it is hoped to complete the music hall in time for the eventual peace rejoicings. The plans and designs were prepared by Mr. Bertie Crewe, architect of the London Opera House, some time before the outbreak of hostilities, and estimates were being obtained when war was declared. Thanks, however, to the energy and enterprise of Mr. Alfred Butt, the Société decided, after making a careful investigation of the possibilities of doing building work at that time, and after learning from the Paris authorities that no difficulties would be placed in the way of the execution as long as the work did not interfere with military duties,

to make a contract with Mr. F. G. Minter, of Putney, for the construction of the building. Of course, the progress of the work has been slow, and many difficulties in the way of labour were met with from the start, but the work has been carried to its present point in a satisfactory manner. Some difficulties were encountered with the foundations, which had to be taken to a great depth, the site being placed over the dried up bed of a small river crossing the St. Lazare quarter, the same little river which caused much work and anxiety to M. Charles Garnier in the construction of the foundations for the Opera House. Labour for excavation work could not be found at Paris at that time, all the valid men having gone to the front, but thanks to the help of some refugee excavators from Belgium—now returned to their front—the foundations were successfully completed.

The only labour to be found for masonry, scaffolding and similar work was by men much past military age, helped by young boys. Materials were difficult to obtain at the outset, but became easier later as stocks were obtained. Considering the many difficulties which it was known were to be encountered in the execution of the work, the rarity and the cost of materials, and the shortage of labour, Mr. Alfred Butt, as representing the Société, may be congratulated on his undertaking, and the architect, Mr. Bertie Crewe, the resident architect, Mr. Arthur Vye-Parminter, together with Mr. F. G. Minter, the general contractor, may pride themselves on having undertaken and executed what is certainly the only important building constructed in Paris, and probably in France—except military buildings—during war time.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

### Whitley and Monkseaton Cemetery Buildings.

SIR,—May I express my honest admiration of your illustrations of the virile work of Mr. Cratney in to-day's "Architect," so refreshing, self-reliant, and free, as I think they are, from any mere repetition of the prescriptions of the modern Classicists, which, after all that has been or can be said, are quite as much revived copies as ever were the now tabooed works of the Gothic revivalists, whose Gothic was, at any rate, less of an exotic in our climate than are modern editions of the works of Greece or Rome. The house appears to have been designed "from within outwards," as, and rightly, recommended by Mr. Baillie Scott.

The whole shows "what to avoid" while making the most of things in the adaptability of design to site, purposes, and materials selected.

Those who possess the right spirit have little need for precedents, but can draw upon memory and study without the necessity of either the works of others, or even of reference to their own measurements and sketch-books to furnish them with what they want and what is wanted.

—Yours, &c.,

E. SWINFEN HARRIS.

September 15, 1916.

### The True Science of Chromatics.

SIR,—The "Architect" recently published a paper on the "Science of Chromatics," by Mr. Fraetas; it is a subject I am much interested in. The alliance between colour and music is not a new idea. Goethe wrote on the subject years ago, in his "Theory of Colour"; and in recent years a "colour organ" has been invented, which shows certain colours and schemes of colour on certain notes being struck. There are many good books on colour and science such as "Colour Problems," by Vanderpoel, "Modern Chromatics," by O. Rood, and I doubt if Mr. Fraetas' ideas are quite





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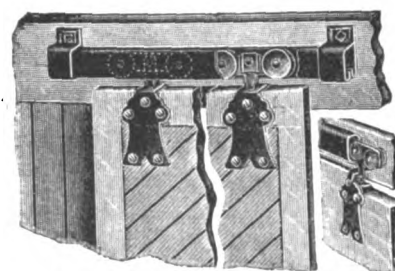


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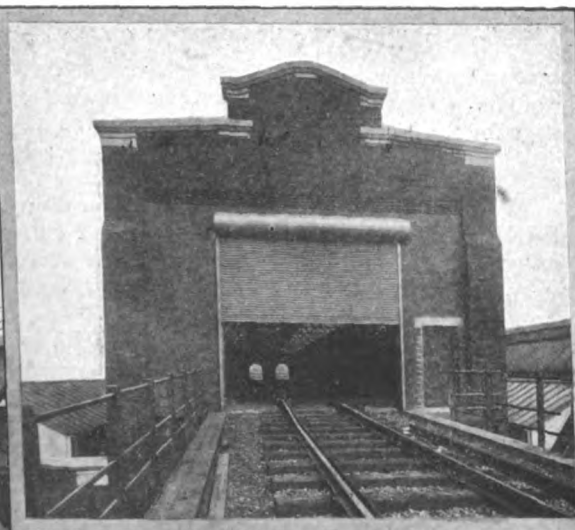
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as original as a perusal of his paper suggests. However, that is a minor point—the point is that “colour” is now coming into her own.

The advance of the importance of colour in the public eye is due chiefly to artists, and largely to that section of them known for their irreconcilable or revolutionary ideas—the so-called Futurists and Cubists, &c., who amongst a good deal of tommy rot have largely been the pioneers of pure colour in Western art.

Also the leading poster artists and the artists who draw for the merchant princes of the Empire have done and are doing yeoman service for the science and art of colour, and to them must be added the great commercial men themselves, who whether as individuals or as companies have the wisdom to employ these artists.

The immense influence of the District Railway and its allied concerns in its far-seeing pioneer work for first class pictorial advertisements cannot be overestimated. Again, the paramount importance of colour is voiced by the new art monthly “Colour,” which has completely outclassed its art contemporaries.

Artists cannot be made by science, but they can be very greatly helped by it; no artist can be made by examinations or rule of thumb methods; but the “Science of Chromatics” is and will be more and more of great service to men who are artists, and I beg to congratulate “The Architect” on the wisdom of publishing this very interesting paper on the “True Science of Chromatics,” by Mr. Frazer.—Yours, &c.,

ARTIST.

## BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### BEDFORDSHIRE.

- Luton*.—Business premises, Biscot Road: additions for Messrs. George Kent, Ltd.
- Dyeworks, New Bedford Road: additions for Messrs. T. Lye & Sons.
- Dyeworks, Regent Street: additions for Mr. S. Hubbard.
- Factory, Taylor Street, for the Thermo Corporation, Ltd.
- Motor garage, Union Street, for Mr. B. E. Barrett.
- Warehouse, Cheapside: additions for Mr. S. H. Godfrey.

##### DEVONSHIRE.

- Devonport*.—Council school, King Street: reconstruction (£9,400).

##### DURHAM.

- Jarrow-on-Tyne*.—The “Golden Fleece” p.h.; alterations for Mr. Roy Stone.

##### ESSEX.

- Braintree*.—Premises, High Street: alterations for Messrs. Townrow Brothers.
- Manor Works: additions.
- Burnham-on-Crouch*.—Red Cross Hospital: new ward.

##### HAMPSHIRE.

- Farnborough*.—House and shop, corner of Farnborough Road and Pinehurst Avenue, for Mr. J. Price.
- Store, Farnborough Road, for the Misses Hunt.

##### KENT.

- Folkestone*.—Business premises, Sandgate Road, for Messrs. Bobby & Co., Ltd. Mr. E. Searchfield, architect.
- Ramsgate*.—House, Dumpton Park Drive. Mr. W. W. Martin, builder.
- “Montague House”: rebuilding coachman’s house, for Dr. Channing Pearce.

##### LANCASHIRE.

- Horwich*.—Works: proposed extension for Messrs. Adam Mason & Sons.

*Rochdale*.—Garage, Dodgson Street, for Messrs. Holt Brothers.

Garage, Royds Street, for Messrs. Sidebottoms (Rochdale), Ltd.

The “Boilermakers’ Arms” p.h., Duke Street: alterations for the Rochdale and Manor Brewery Co., Ltd.

Wool dye-house, Greenfield Lane, for Messrs. J. Radcliffe & Co.

##### SHROPSHIRE.

*Oswestry*.—Proposed theatre, New Street, for the Arcade Theatre Company. Mr. E. Bremner Smith, architect, Oswald Road. Mr. J. W. Clarkson, contractor, Gainsborough Road, Blackpool.

##### SURREY.

*Bookham*.—Works, Merrylands, for Messrs. Gillett, Stephens & Co.

*Richmond-on-Thames*.—The South African Military Hospital: additional 220 beds.

##### WARWICKSHIRE.

*Foleshill*.—Two houses, Little Heath Road, for Mr. E. Pearson.

##### WILTSHIRE.

*Swindon*.—House, St. Mary’s Grove. Mr. R. J. Leigh field, builder, 1 Witney Street.

No. 12 Edgware Road: additions for Mr. S. J. Thompson.

No. 11 Fleet Street: additions for the Industrial Co-operative Society.

No. 8 High Street: alterations. Messrs. Bishop & Fisher, architects, Regent Circus.

##### YORKSHIRE.

*Batley*.—Cottages, Staincliffe: additions for Messrs. Carr, Ltd.

*Hemsworth*.—Hospital: proposed additions.

*Moorthorpe*.—Proposed mortuary.

#### SCOTLAND.

*Ayr*.—Westburn Foundry, Guthrie Port: addition for Messrs. Douglas Fraser & Sons, Ltd.

*Canbridge*.—Institute, Bank Street, for the United Y.M.C.A.

*Glasgow*.—Works, Netherton, Anniesland: power-house for the Ioco Proofing Co., Ltd.

## PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 8,815. June 15, 1915.—J. C. Woodley, 1007 Prospect Avenue, Pelham Manor, New York, U.S.A. Fibrous compositions.

12,716. Sept. 4, 1915.—C. D. Monniger, Ltd., 124 Clerkenwell Road, E.C., J. Walsh and Sam Barlow, both of Havelock Sawmill, St. Oswaldtwistle. Mortising machines.

13,667. Sept. 25, 1915.—J. G. Kirtley, Sea View, Roker Park Road, and Albert Cowper, 4 Thorburn Street, Fulwell, Sunderland. Ashbin, refuse receptacles, and the like.

12,056. Aug. 21, 1915.—James Morris, St. Bernard House, Knott End, Fleetwood, Lancs. Valves (more particularly ball or spherical).

14,536. Oct. 14, 1915.—J. A. Dick, 51 Fenchurch Street, E.C. Means for heating air.

10,435 (1,499, Feb. 1, 1916, dated under International Convention May 8, 1915).—Matthew Maloney, 368 Armagh Street, Linwood, Christchurch N.Z. Fire alarm.

101,159 (158, Jan. 5, 1916).—Alfred Hartley, 21 Market Street, Colne. Domestic firegrates.

101,168 (1,391, Jan. 28, 1916).—France Lanord and Auguste Bichaton, 5 Quai Isabey, Nancy, France. Suspended structures for roofing or like purposes.

101,186 (4,870, April 3, 1916).—Sam Pulman, 68 Tib Street, Manchester, and W. H. Bowers, 96 Denmark Road, Manchester. Floor-board cramps.

101,191 (5,863, April 20, 1916).—Heinrich Bobie, 8 Mozartstrasse, Altona-Bahrenfeld, Henry Hoch, 199 Bahrenfeldstrasse, Altona-Ottensen, and Bruno Becker, 28 Neue Groningerstrasse, Hamburg. Milling cutters for wood.

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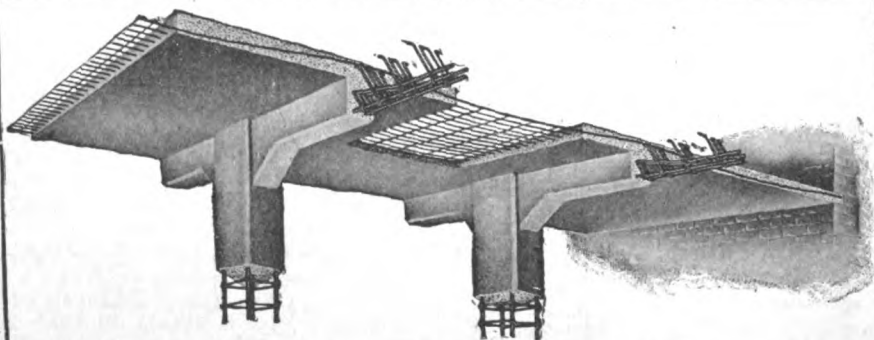
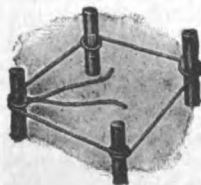
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## SCIENTIFIC AND INDUSTRIAL RESEARCH.—II.

IN pursuance of their policy of inquiry into the present position of industrial research and of the direction in which scientific work is desirable the Chairman and other officers of the Council have interviewed representatives not only of the Royal Society and the Chemical Society, but of all the principal engineering societies throughout Great Britain, and other important professional societies, such as the Institute of Chemistry, the Society of Chemical Industry, the Society of Public Analysts, the Society of Dyers and Colourists, the Royal Institute of British Architects, the Faraday Society, and several trade associations such as the British Electrical and Allied Manufacturers' Association, the Silk Association, the Staffordshire Pottery Manufacturers' Association, the Federation of Master Printers.

It appears from these inquiries that whilst the engineering trades, with their attendant group of distinguished professional societies, have long been alive to the need and value of scientific research, the other trades represented have, for the most part, from various causes, been characterised by a lack of organised scientific research. Recognition of the necessity for such research is now, however, becoming awakened.

Another line of inquiry by the Council related to the formation of a register of researches actually being conducted by students in our Universities and Technical Colleges on the outbreak of war, with particular reference to the rapid provision of suitable workers when proposals for special lines of research come before the Council. A survey of the directions in which research is now proceeding in our universities and colleges may, it is expected, enable the Council to make helpful suggestions to individual workers from time to time as the need for research in particular directions becomes apparent.

The stimulation of an adequate supply of trained students connotes the making of grants by way of aid to individuals, and although by reason of the depletion of the ranks of students no definite scheme could at the present time be put into operation by the Council, it still seemed possible to them to make tentative experiments and in the process to gather experience and suggestions for future guidance. The principle was formulated that in no case would the Council recommend a grant if in the result the funds of an university or college ordinarily available for teaching or research would thereby be relieved. With the benefit of carefully made proposals from responsible professors and teachers the Council in the war-dearth of students have only been able to recommend grants to some forty individuals.

Whilst recognising the universities as peculiarly suited to become the home of research in pure science, the Council contemplate the possibility of directing the attention of students in those centres to many interesting problems in industrial research, and also of filling the position of a clearing-house for information bearing on research, and thus bringing into touch those engaged

on similar lines of investigation. With this view the Council desire that professional societies with industrial connections should be encouraged to use the facilities offered by the universities for research in a systematic way.

The manifold and varied fields of industrial research that require separate methods of cultivation convinced the Council at an early date that they must proceed at once, in accordance with Paragraph 8 of the White Paper, to set up a series of strong Standing Committees to assist them in surveying the field of research, in constructing panels of referees, and in dealing with applications for grants.

We have already, in the columns of "The Architect," referred to the establishment of the first three Standing Committees: the Committee on Metallurgy, with special sections for ferrous metallurgy and for non-ferrous metallurgy; the Committee on Engineering; and the Committee on Mining, with a section on the mining of iron, coal, and hydrocarbons, and a section on the mining of minerals other than iron, coal, and hydrocarbons.

The Council realise that the number and scope of the Standing Committees will need extension from time to time, but the absence of strong professional societies, working in conjunction with the other scientific industries in this country, makes it inadvisable to proceed hastily in so important a matter. In particular the organisation of the Council's machinery for the manifold chemical industries needs cautious handling in the first instance. Up to the present the Council have dealt with such questions as they have been able to approach by means of small special committees of the Council itself, which have been empowered to consult other persons as occasion arose; but at best this must be a temporary expedient.

It seems unlikely that a single chemical committee, with the large number of special sections that would be necessary, could usefully be established at the present moment, and the Council are disposed to think that a series of Standing Committees dealing with particular branches of the chemical trades may be the better manner of proceeding. A Standing Committee on Fuel may be necessary; possibly another for Rubber, and a third for the Chemistry of Cotton and Paper. A Standing Committee for Textiles, with special sections for Cotton, Wool, and Silk, is also likely to be needed before long. We hope that the Council will also establish a Standing Committee for manufactures connected with the building trade.

The Council in their report drew attention to the fact that at the present time activity is as marked in the field of ideas as it is in the field of war. The action of the Government in setting up the new machinery for research has, they say, been accompanied, if not instigated, by vigorous discussion and debate in the public Press and the learned societies. They refer particularly to the activities of the Royal Society, the Chemical Society, and the Society of Chemical Industry.

In respect of educational reform and the national necessity for a larger output of trained men of science, notice is taken of the propaganda of the British Science Guild, the Teachers' Guild, Sir Ray Lankester's Committee on the Neglect of Science, formed to deal with Science in the public schools, the older universities, and the examinations for the Civil Service; the action of the professors of the Imperial College.

Nor has the movement been confined to professors and scientific men; the practical man of business, the manufacturer, and the trader have been as anxious and interested as any. It is not to be wondered at, for they were the first upon whom the significance of a state of war was forced. In the early months of the war the great steel manufacturers were in grave danger from



the possible exhaustion of the supply of chemical glass necessary for the testing of their materials and products. The consulting chemists were in the same case, whilst the pottery manufacturers were hit in another way, similar in its origin. The supply of Seger cones, necessary as a guide to the firing of their china and earthenware, was cut off by the war, and they were threatened with closure from this and other causes. The silk industry, which has suffered much from foreign competition, has also recognised the necessity for scientific research, and the Silk Association, though primarily established for the purpose of settling prices, has formed a representative Research Committee; a carefully thought-out programme of research has been drawn up, and the first of a long list of problems is now to be attacked at the Imperial College by Professor Percy Groom and his staff.

Intimately connected with the subject of scientific research for the benefit of industry is the movement towards Trade Association. The Council have found that many scientific industries are completely without any effective trade associations through which their common manufacturing interests and difficulties can be approached. There are few associations for the various chemical trades which are so well organised and effective as the British Electrical and Allied Manufacturers' Association for the electrical engineering industries, or as the British Engineers' Association for the whole industry.

There are many professional societies connected with particular industries, and some associations with trade names that are really trading companies. Other trade associations, again, are concerned entirely with the regulation of prices, or are almost exclusively interested in questions affecting the relations of capital and labour.

Even those trade associations which exist have hitherto shown but a moderate appreciation of the necessity for research as a means of keeping command of the market, unless, indeed, they see their trade in actual danger. Our manufacturers are, however, beginning to realise that the most serious competition they have to face is not that of their rival fellow-countrymen in the same trade, but strongly organised associations of foreign producers, supported by every device of finance and tariff that their governments can apply. The advantage of research by a trade association for the benefit of all its members may, when recognised, clear away a good deal of the inertia which British manufacturers have shown towards research, due to a realisation, partly instinctive perhaps, but partly based on experience, that research on the small scale they could afford was at best a doubtful proposition.

#### REMINISCENCES OF BRUGES, JUNE 1914.

No. 23 Rue des Tonneliers is a grim forbidding-looking place, and its name, the Black House, is very appropriate. It was built in the fifteenth century, and still contains some beautiful old furniture and fittings. Among

these one of the most interesting piece in an inner room, though it may be a restoration, of older work. It is in very low relief, gilded and coloured, and is divided into three compartments. According to the owner, we have in the first a gallant gaily setting out to woo; in the background of the central panel he is enjoying the favour of his lady-love, but in the foreground he is groaning under domestic tyranny; and in the last he is rejoicing in death because it has set him free from his wife. This explanation suits the carving very well, but another and better interpretation can be given to the central panel, which undoubtedly depicts part of a famous medieval tale, the "Lay of Aristotle," a conte by a thirteenth century trouvère, Henry d'Andely. The "Lay" tells how Alexander the Great, during his sojourn in India, fell in love with a beautiful Indian girl, and wasted his time with her when he ought to have been attending to affairs of State. His mentor, Aristotle, reproached him bitterly, and told him that his conduct was more befitting a beast than a man. The girl, much incensed, determined to avenge herself. She set to work to beguile the philosopher, and succeeded so completely that he went down on all fours and allowed her to put a bit in his mouth and ride upon him, just as we see here. Meanwhile Alexander, who had been watching them from a tower, came down and scoffingly asked him who was the beast. Representations of this tale, very similar to our own, occur on a misericord in Rouen Cathedral, the façade of Lyons Cathedral, and elsewhere, but sometimes the lady is very scantily clothed. Somehow, in the case of the mantlepiece at the Black House, a later story has been grafted on to the original "Lay."

#### NOTES AND COMMENTS.

We hail with delight the report of the Committee of which Lord Faringdon was the Chairman, appointed by the Board of Trade to consider desirable means of meeting the needs of British firms after the war as regards financial facilities for trade, particularly with reference to the financing of large overseas contracts. In the columns of "The Architect" we have repeatedly pointed out the great advantage afforded to German manufacturers and merchants by the system of financial assistance operated by the Deutsche Bank and its subsidiaries, backed by the credit and influence of the German Government. This advantage it is, as we have already indicated, which has flooded the British building trade with materials and processes that are the subject of German patents—we will not say invention—and the product of German factories, operating not only in the Fatherland, but in our own country and in Continental centres of cheap labour, notably in Belgium and Italy.

Whilst we are cordially in agreement with the proposals of Lord Faringdon's Committee for the financing of overseas business and for the pushing of British business abroad, we are more particularly delighted with



MANTLEPIECE IN THE BLACK HOUSE, BRUGES.

the recommendation that the "British Trade Bank" should provide fuller financial facilities for home industries. In the old days of the predominance of private banks, many an honest and capable young builder or craftsman was enabled to lay the foundation of a flourishing business by the financial assistance given to him by those institutions on the credit of his character. The modern joint-stock banks, which have swallowed up so many of the older private and family concerns, demand a more negotiable security for their advances than character. The change has, in very large measure, been responsible for the elimination of the honest speculating builder in favour of the jerry builder, the man of straw, both financially and morally, who has carried on his operations with one foot in the Bankruptcy Court, financed as to his wages sheet by solicitors and their clients on the security of first mortgages, and as to his material by credit obtained from confiding merchants. If the public snapped up his ramshackle erections, all well and good; if not, the Bankruptcy Court apportioned the losses and Jerry had another try.

We trust that the "British Trade Bank," in pursuance of its avowed policy of supporting home industries, will do much to restore the character of modern British vernacular building, to the benefit of the public and the credit of architecture.

The deputation to Mr. Walter Long, President of the Local Government Board, representing the National Congress on Home Problems after the War, organised by the National Housing and Town Planning Council, received, as might be expected, a sympathetic hearing, for it is the weekly wage-earners, with their millions of votes, who are the greatest sufferers by the present appalling shortage of housing accommodation. Not only was there a carefully guarded admission that the Government ought to give the assistance of the State—without adherence to the request for £20,000,000—but Mr. Long is reported to have said that, in regard to the demand that the legislation promised by the Government in 1913 and 1914 to amend the Finance Act of 1909, in order to remove an obstacle to the building of working-class houses should be carried, he regarded the Government as pledged to carry a measure of reform, and he hoped that when it came it would be complete, because he was confident it was necessary. We regard the encouragement of private enterprise as far more likely to promote good and cheap housing than the subsidising of local authorities. But the Board must revise the by-laws.

At the luncheon in connection with the annual inspection by the Liverpool Housing Committee, Alderman Harford, the Deputy-Chairman, referring to the wonderful transformation that had taken place in Liverpool as the result of the Housing Committee's work, proceeded to briefly review the year's operations. The war had, of course, he said, interfered with this work as with everything else, and the committee had been most careful in not incurring any expenditure on the capital account, with the exception of such expenditure as was necessary, and which was sanctioned by the Treasury, to complete the erection of the new dwellings in Gore Street, Jordan Street, and Sparling Street. The new dwellings in Gore Street and Sparling Street were in such an advanced state that he had hopes of their being ready for letting in a few weeks' time. The number of dwellings comprised in these three latest schemes was 71, which would bring the total number of dwellings under the control of the Committee to 2,894, of which number 2,862 would be used as dwellings, thirteen as lock-up shops, and nineteen as dwellings and shops. At the outbreak of war six new schemes were in course of being dealt with, viz., Prince Edwin Street, Rathbone Street, Mason Street, Saltney

Street, Blenheim Street, and Penrhyn Street. The greater portion of the properties comprised in these areas had been acquired. No further properties had been purchased since then, but in order to be ready to go ahead immediately the war ceased plans were being prepared for rebuilding on four of these areas, viz., Mason Street, Saltney Street, Blenheim Street, and Penrhyn Street. With regard to demolition, only sixty back-to-back houses were dealt with last year, and the total number of such houses remaining to be dealt with on January 1, 1916, was 2,585. The Committee regretted that they were unable to deal more quickly with the closing and demolition of these insanitary houses, but in late years the scarcity of available houses had become very pronounced, and consequently the Committee had had to proceed cautiously. As was only to be expected, the practical cessation of all private house building operations had considerably reduced the number of empty houses in Liverpool. For instance, in 1910 the number of vacant houses in Liverpool under 8s. per week was 4,895; according to the latest return this number was reduced to 511, and of these 294 were of an insanitary character.

The Director of Housing (Mr. F. T. Turton) gave some further statistics, illustrating how the national shortage of housing has accumulated. He stated that at the end of 1915 there were in Liverpool 153,072 dwelling-houses, of which no fewer than 113,429 were assessed at £13 and under, equivalent to a rent of 8s. 6d. and under. The total of unoccupied houses at the end of 1915 was only 1,358. In 1910 there were 7,265 unoccupied houses. The average increase of the population was about 5,000 per annum, but practically no provision had been made for that increase. The total number of houses erected in 1915 was only 468, instead of 2,000. The population at the end of 1915 was 772,592, of whom 11,393 lived in Corporation dwellings. What were the reasons for there being no building? Private builders were not philanthropists, but investors, and he took it that no building had taken place owing to the increased cost of both labour and materials, the difficulty in obtaining mortgages, and the increased value of money, while at the same time there had been no increase in rents.

The important and completely representative meeting of the engineering and allied trades, held at the London Mansion House last week, adopted the following resolutions: (1) "That this meeting expresses its appreciation of the great national service rendered by the munition workers of the country, whose patriotic support of our fighting forces on land and sea is hastening the achievement of final victory, and expresses the hope that permanent remunerative employment will be secured in the vigorous economic development of the engineering industry after the war"; (2) "That the indispensable military service rendered by the engineering industry, and its fundamental importance in the future as the basis of defensive power and of prosperous economic development, entitle it to special recognition in any reform of a national and imperial commercial policy, and to the patriotic support of all public and private users of plant and machinery throughout the Empire"; (3) "That this meeting expresses its general approval of the proposals of the Paris Economic Conference, and recommends that their practical application for the benefit of British industry should be furthered by the immediate appointment of a Ministry of Industry."

By these resolutions, as by the speeches made in their support, it is clear that the engineering trades recognise that the great work that has been done for the defence of the country during the war by engineering labour can be continued for the national prosperity in peace. The means of this continuance was well put by Mr. G. H. Roberts, M.P., who said that if the nation was to remain great we must in the coming years preserve that harmony and co-operation that had

characterised all classes throughout the war. If not, the nation would decline and decay. Unless after the peace we could establish a reasonable period of industrial harmony the Empire would ultimately rest on very shaky foundations. We should not only have a colossal debt, but we should have to make up international leeway. Neutral nations had been profiting at our expense, and would be better equipped for competition. They would be in a more favourable position than we, with one exception—the war had waked us up. Our immediate task was to create a friendly understanding between Capital and Labour. They must not wait till peace had been established. They must do it now. The atmosphere was more favourable than it would be after the war. He had just left Mr. Arthur Henderson, who had received an intimation that one of his three soldier sons had gone down the dark valley, and the father understood that he had gone down happy. The whole future of the Empire depended on such an understanding as he had indicated being arrived at early. The working classes did not voice grievances out of mere wantonness. Employers should get to work at once, accept the principle of a living wage, recognise the principle that the worker desired time for recreation and leisure, and if they did that then he was prepared to say to his class that they were fairly treated and that they were expected to render of their very best without regard to restrictive conditions. Our greatest problem was increase of output. The worker recognised that to recover from the ravages of war we must all redouble our efforts. Owing to imperfect organisation, when we had speeded up output gluts and unemployment ensued. That sort of thing ate into the very souls of men. They must face the apprehension of the worker that increased output would result in unemployment. It was for them all to enter into co-operation to perfect the organisation of national industry so as to prevent these cyclical and seasonal fluctuations. There must be good will on either side, and now was the most fitting occasion for it. He knew that trade unions would demand complete restitution of their regulations, but that did not mean that they must wait till the war was ended to regulate the conditions. Negotiate now in a friendly atmosphere and they would have made a solid contribution to the future stability of the State.

It is interesting to note that Australia is taking seriously the question of afforestation. As the outcome of a resolution carried at a conference of the Australian Natives' Association, a deputation waited on Mr. Livingston, Minister of Mines and Forests, and affirmed the importance of a national afforestation policy. Mr. V. Trapp, Vice-President of the Australian Forests League, pointed out that every year that forestry was neglected meant a loss to future generations of over £1,000,000. He suggested that the forests should be placed under a Commission, and conducted independently of Government control. If the Federal Government took over forestry from the States, and planted 150,000,000 trees, which it could do in three years, the value of these trees in sixty years would not be less than £2 each, and they would be able to pay their war debt with the money thus created. In the State of Michigan (U.S.A.) the internal taxation was something over £1,250,000 per year, but it was estimated that within fifteen years there would be no internal taxation, as the whole of it would be paid for out of forestry. The Minister for Mines and Forests said in reply that the Government proposed to plant out 7,000,000 trees this year, which was not a bad start. Next year provision would be made for planting 10,000,000 trees, and he hoped that year by year it would increase until 20,000,000 trees would be planted in one year.

H.M. Trade Commissioner in New Zealand (Mr. R. W. Dalton) writes to the Board of Trade that, judging

from his correspondence, a number of United Kingdom firms, while they are disposed or have even decided to establish agents in New Zealand, have apparently determined not to do anything in the matter until after the war is over, and that their reason for deferring action evidently lies in the difficulty of delivering goods at the present time. This attitude has given rise to a good deal of criticism on the part of New Zealand firms; these firms realise the difficulty in the way of delivering goods, but they feel that the preliminary negotiations should be conducted now. Firms in New Zealand are even more anxious than formerly to deal in British goods and to hold British in preference to foreign agencies. At the same time, they must naturally take into consideration their means of livelihood after the war. The position is that while British firms are postponing the appointment of agents, and even postponing negotiations to that end, American and Japanese firms are seeking to appoint agents in various directions. It should not be forgotten by United Kingdom manufacturers that while the war has quickened British interest in trade it has also had the effect of offering an opportunity to foreign manufacturers to obtain trade—not only that which was formerly in German hands, but also the trade which United Kingdom manufacturers are precluded from attending to at present. The New Zealand market has direct connection with two progressive manufacturing countries (United States of America and Japan), and the manufacturers of these countries have been making considerable efforts to establish connections which they hope will prove to be permanent. The point of view of the agent with whom a British firm will not negotiate now is that, if he waits until the war is over and the negotiations then carried on should not prove satisfactory, he may probably lose other opportunities during the war. From the point of view of the British firm, there is the possibility that, owing to its refusal to negotiate now, it may lose an agent who would prove eminently satisfactory, and after the war may be unable to find another agent as suitable. Most New Zealand firms realise, often from experience, the difficulty and often impossibility of obtaining goods from the United Kingdom at the present time. What they naturally want to obtain is some security that their position after the war will be satisfactory and that they will not suffer by having refused other offers.

The gift by M. Rodin to the French nation of his entire collection of works of art, his house and studio at Meudon, his books, manuscripts, and copyrights not only proclaims to the world his triumphant faith in the spirit of France, but is a subject of congratulation to all who are interested in the art of sculpture. The gift ensures the maintenance as an entity of the work and collections of the foremost French sculptor of our time, and obviates the possibility of their disposal in the museums and private collections of alien countries.

Whilst we fully admit the importance, from a material point of view, of the present propaganda in favour of a more extended development of scientific education, it is somewhat disquieting to note the still prevalent apathy as to the important position of art, not only in the moral education of the country, but as an asset of great potentiality in the world of commerce. The Brussels Exhibition of 1910 showed that in the industrial arts Germany was beaten very badly by this country. Her woven textures, her pottery, her furniture, her surgical instruments, her colour-printing and bookbinding were so inferior to our own that, in regard to most of these things, she could not be said to compete with us. She was trying hard to do so, but her efforts were marked by a certain puerility, none the better for being bold. That conceit of their own genius which seems to have plunged the German race into a moral disaster incredibly stupid was evident in the product of German art, which ignored the past and aspired to create new models without guidance.

If we are to pursue our advantage in the industrial arts, the first thing necessary is that the Royal College

of Art shall be liberally equipped and endowed by the nation. The College of Science has, at any rate, a fine modern building, and due importance. The College of Art is in an old warehouse, out of sight; and, far from commanding that respect which the very name of the Beaux-Arts imposes upon every Frenchman (with a curriculum in no sense better), it is in constant danger of being stunted by officialdom and forgotten by the public.

The anomalous position of Great Britain in regard to the production of zinc was the subject of a paper read at the annual autumn meeting of the Institute of Metals by Mr. Ernest A. Smith, who said that for many years Germany remained the chief zinc producer, but rapid strides had recently been made in America, which now took first place as the largest producer. Fifty years ago the world was only producing 133,000 tons of zinc a year, whereas the figures for 1913 were 982,000. The larger proportion of the zinc ore mined in Germany came from the Silesian district. English smelters were dependent on imported ores. The cutting-off of European supplies had resulted in an extra call on American, and the total capacity of American plants had been brought up to about 625,000 tons per annum—double the output of 1913. In view of the large ore reserves in America there was no reason to suppose that there would be any failure to realise the expected output. Germany and Belgium had depended on foreign supplies of ore, and the chief obstacle to these continental industries regaining their positions would probably be a shortage of it. The supplies to Germany available from Silesia, Hungary, Corinthia, and Tyrol had been worked for more than three centuries, and were partially exhausted. The supply of ore even when the mines were working to their full capacity would doubtless be short of what was required to maintain the large output of spelter for which Germany had hitherto been responsible. Great Britain had been in the anomalous position of having to purchase spelter from overseas at fabulous prices since the war began, while there were abundant supplies of zinc ore within the Empire, but inadequate smelting plant for its treatment. Schemes were now under consideration for the expansion of the zinc smelting plants within the Empire to deal with domestic zinc ores, and steps were being taken to erect the necessary smelting plants both in England and Australia. An agreement had been arrived at between the spelter producers in this country and the Ministry of Munitions on the subject of new works with the view of increasing production.

The suggestion that instead of demanding monetary payment for the material destruction wrought by the enemy in occupied territories, or by the Allies in driving him out of those territories, it should be stipulated in the conditions of peace that all wrought material and skilled labour called for in the work of restoration shall be provided by the enemy himself, within a fixed minimum period, working in strict accordance with the specifications and under the personal inspection of officials appointed by the injured State, is not one to be lightly accepted. Work must be found for the millions of French, Belgian, Russian, Italian, and British men and women who are at present occupied in fighting or in the provision of war material, and it can scarcely be anticipated that sufficient of such work can be found in the ordinary processes and trade of peaceful commerce.

## ILLUSTRATIONS.

### COMPETITION DESIGN FOR ST. PAUL'S BRIDGE.

We reproduce this week the design for the proposed St. Paul's Bridge, by Mr. John J. Robson, M.I.C.E., the perspective for the centre arch and piers of which was hung this year in the Royal Academy.

This design was submitted in the competition held in May 1914, but was not accepted. Notices of commendation of it, however, appeared in the various pro-

fessional papers at the time, and more recently in the Press on its exhibition.

Its reproduction gives us an opportunity of further comment on this subject, for it would be idle to suppose that the scheme for St. Paul's Bridge is dead, and that the last word has been said with reference thereto.

The recent examples of bridge design over the river Thames in London have not given general satisfaction; and when the Bridge House Committee decided upon the erection of a "monumental bridge in masonry," they adopted the only proper and available course of procedure in their endeavour to discover any latent talent which might be lying dormant in the country—a public competition.

The efficient designing of large road bridges requires peculiar talent and experience—i.e., a combination of both the engineering and architectural. In the United Kingdom the construction of these bridges is in the hands of so many public authorities, each of which has its own engineer or surveyor, that it is difficult to institute any progressive study of the subject which would result in the development of bridge architecture such as could only be attained under a single authority.

In France, where such national authority has existed for generations, this desirable result has been achieved, and bridge architecture has been raised to a very high level of efficiency.

Although we have commended the Bridge House Committee for having adopted the principle of a public competition, we cannot refrain from pointing out the errors into which it fell in their procedure of carrying it into effect. The competition should have been held and the design adopted before going to Parliament for a Bill, by which means the competitors would have had a free hand, and a more efficient design would have been obtained. Instead of which the Bill was first introduced, which strictly defined the piers and openings with their respective headways and the gradients of the road and approaches which handicapped the genius of the competitors.

It has always been considered necessary to give a bridge a slight camber, whereby the best effect is obtained; but in this case the gradients were such as to necessitate a fall of five feet from the north to the south end of the bridge. This not only prejudiced the design generally, but had a disastrous effect upon the design of the Surrey abutment. Again, the statutory widths of and positions of the openings were such as to make the piers too thin for effective treatment, and further, the fixed gradients and headways did not allow sufficient thickness at the crown of the arch for the effective treatment of the voussoirs and cornice in a bridge of such magnitude.

The falling gradient on the bridge caused the springing levels of the arches to vary, which did not improve the appearance of the piers. The difficulty of dealing with the cornices and parapets on the abutments and the north approach with a gradient of 1 in 60 was only overcome at the expense of good design.

The block-plan of the site, which was supplied to the competitors, showed the net width of the bridge and approach viaducts with no clearance whatever for construction, and indeed, at some points there was insufficient room for the proper design of the structure, nor could any further space be obtained on application.

We would further remark that if it was so difficult a matter to discover some hidden genius capable of undertaking a work of such importance and magnitude, how much more so must it be to find an assessor to adjudicate upon the designs received; for it may safely be assumed that at least a few of the numerous competitors might be men of matured bridge experience and of greater genius than the assessor. These remarks are purely academic, and are not intended to reflect in any degree upon Sir William Emerson. Indeed, our views are that he was placed in an impossible position, and that too much was expected of him.



In such a competition, which was possibly the largest, most important, and most singular ever held in this country, we submit that a committee of selection should have been appointed, composed of two engineers and two architects, with an independent chairman, all eminent in their respective professions.

This committee should have had the power if necessary to select a few of the best competitors for a second select competition after the various questionable points had been decided, so that the very best results might be obtained, each of these selected men being paid for his design.

A few remarks upon the design which we reproduce may prove useful in forming an opinion on its merits.

The principal feature of the design is the centre arch of 155 feet span, with a headway of 33 feet 6 inches, the piers being 87 feet high and the bridge 80 feet in width between the parapets.

The voussoirs on the elevation are shown 13 feet deep at the haunches and a minimum of 5 feet 3 inches near the crown; they and the quoins of the piers and abutments would be slightly curved on the face with rounded edges and margins with a bold square sunk joint. The cornice would be 3 feet 3 inches deep with 3 feet 3 inches projection; the top stone of the piers 11 feet 3 inches by 8 feet 9 inches by 4 feet thick, the projection of the piers being 9 feet 6 inches, and the cutwaters a further 20 feet.

The masonry is made to course through the piers, which is a feat Rennie was unable to accomplish in Waterloo Bridge, where the courses are broken at the piers.

From these few particulars of its leading features the magnitude of the structure may be inferred.

In this design pylons were considered to be inappropriate, being quite out of harmony with the surroundings: the effective treatment of pylons necessitates a large open space surrounding them, which in this case was impossible. It was, therefore, decided to adopt pylon pavilions, which on the Surrey abutment would contain the staircases to Bankside, whilst on the north abutment they would form tramway shelters.

It was intended that the bridge should assume a national character on completion, and studies were prepared by Mr. Fehr for groups of statuary on the piers and in the openings of the pylon pavilion, whilst the panels above the cornices were to be carved in bas-relief, with great scenes from British history.

In our review of the various competitive designs for this bridge on July 3, 1914, we remarked as follows: "Pylon pavilions are a feature in design No. 14, which is quite a rational production, in which the bridge is well treated"; whilst our contemporary "The Builder" said on the same date: "No. 14 looks well in a finely executed perspective, and is a design of some merit."

The author of this design must be congratulated upon his recent example of road bridge construction in the rebuilding of Rochester Bridge over the river Medway, in conjunction with Messrs. Baker and Hurtzig as joint-engineers.

#### DOWART CASTLE, ISLAND OF MULL.

We this week complete our series of illustrations of the restoration and enlargement carried out at this ancient building from the designs of Messrs. John Burnet & Son.

SECOND-LIEUTENANT GEORGE J. BALFOUR, H.L.I., attached to the Northumberland Fusiliers, who was killed in action on September 15, was the younger son of Mr. Andrew Balfour, F.R.I.B.A., architect, Glasgow. He was educated at the Glasgow High School, and on leaving it he entered the service of Nobel's, Ltd. On the outbreak of war he joined the H.L.I., and a year later received his commission. He was nineteen years of age. His elder brother, Captain A. Campbell Balfour, is on active service with the H.L.I.

#### THE REPLANNING OF DUBLIN COMPETITION.

IN our issue of September 1 we gave some particulars of the result of the competition for the replanning of Dublin which had been held up by the outbreak of war. Additional information is given in the appended extract from the "Irish Times":—

The competition for the prize of £500 offered some years ago by the Marquis of Aberdeen for the best set of plans for the reconstruction and improvement of the city of Dublin attracted competition from landscape architects and city planners of distinction both in the United Kingdom and America. The adjudicators appointed to examine the plans were Professor Patrick Geddes, of Edinburgh; Mr. C. J. MacCarthy, F.R.I.A.I., City Architect of Dublin; and Dr. John Nolen, of Cambridge, Mass., U.S.A. They have, as already announced in the Press, awarded the prize to Professor Patrick Abercrombie, of the Department of Civic Designs, University of Liverpool, and Messrs. Sydney A. & Arthur J. Kelly, surveyors, of Liverpool. Honourable mention was given to five other designs, including those submitted by Messrs. Kaye-Parry & Ross, Dublin, and Mr. Arthur W. Panton, M.A., A.M.I.C.E., Clontarf, Dublin.

The report of the adjudicators and the approved plans were sent to Lord and Lady Aberdeen during their recent tour in the United States, and the plans were exhibited in the auditorium of the Boston City Club last month, where they excited much discussion. According to the conditions of the competition, the plans now become the property of the Dublin Corporation, and they were accordingly despatched some time ago to the Dublin municipal authorities. They have arrived safely in Liverpool, but have since been held up there by the Import Department of the Customs. Up to the present all efforts to have the plans released and sent on to Dublin have been unsuccessful, but representations continue to be made to the higher authorities, and it is hoped that the inexplicable action of the Customs will be at once revised. The plans were made in England, and were subsequently sent to Dr. Nolen for his approval. Why they should be stopped on their return journey and bound up in "red tape" at Liverpool is apparently incapable of explanation. When the Customs officials are directed to release the plans, and they are received in Dublin, it is the intention to exhibit them in some central hall in the city for public inspection.

The report of the adjudicators is, it is understood, in the possession of Dr. Nolen, in America, and no copy of the document is yet available for publication in this country. The report of Professor Abercrombie, which accompanied his designs, has, however, come to hand, and will be perused with great interest by the citizens. The idea underlying the competition was, it is stated, to provide a set of plans on the most approved principles, not necessarily with the view of attempting to carry them out in the immediate future, but, rather, to have at hand a fixed plan which architects and others would have before them in designing new buildings and other changes in the architecture of the city, and to which they might work up to. A plan of a somewhat similar description was designed many years ago for Belfast by the then Borough Engineer, the late Mr. Montgomery. At the time his ideas were considered Utopian; yet, in the course of years, many of his suggested improvements have been carried into execution in that city. Professor Abercrombie's design will also be regarded, on the view, as Utopian, but it will at least, provide material for serious consideration and is bound to be of great interest in view of the rebuilding of the area of the city destroyed during the rebellion, and the many plans now under consideration for the providing of better housing accommodation for the working classes.

Professor Abercrombie, writing of course, before the Sinn Fein rebellion, says:—"Dublin to-day presents a

similar spectacle to Paris prior to the operations of Napoleon III. and Haussmann: it is a city of magnificent possibilities, containing features of the first order, but loosely correlated and often marred by the juxtaposition of incongruities and squalor. As at Paris, central areas which should be of first-rate commercial importance are occupied by slums, and streets of noble architectural dignity are tenement-ridden."

He then goes into elaborate detail in reference to the suggested schemes. The first part dealt with is new radial roads from a new city centre. Then follow such subjects as the reclamation of lands in Dublin Bay for increased dock accommodation, the installation of a "power citadel" and the formation of new factory sites, the immediate need for adequate housing accommodation, improved traffic arrangements and transit schemes generally, and increased area of parks and the acquisition of nature reservations.

According to the plan, Nelson's Pillar is to be no longer the "hub" of the tram system; Sackville street is to be a kind of "monumental Avenue de l'Opera." The new centre is to be on the north bank of the Liffey near the Four Courts, and on the south side near Christ Church Cathedral. One of the objects aimed at by this focussing of communications will be to restore to the north an equal importance with the south.

It is proposed to improve thirteen of the existing main radial roads, increasing some of them to 120 feet in width, with planted park-ways running through their length.

He suggests that the Corporation activities at Pigeon House Fort should be largely augmented. He would transform the existing power station into a huge power citadel, where the raw material and energy which enters the harbour would be converted into motive power for the industrial activities of the whole community. "Why," he asks, "pay for carting the coal inland and distributing it to every factory when one single operation can convert it near where it enters the city? Again, though many chimneys create a dismal effect, there is a grandeur about a single gigantic shaft, with its plume of smoke curling from the brazier-shaped summit. The building adumbrated in the study is confessedly of huge size: the tower 600 feet high, and accommodation provided for ranges of workshops and machinery plant. Architecturally its effect at the entrance of the harbour and as the centre point of the reclaimed Dublin Bay would be magnificent."

The subject of housing accommodation is treated at considerable length. He first divides Dublin into two areas, intra-urban and extra-urban, the former representing substantially the old city, the latter to include the new wards, such as Clontarf, Drumcondra, Glasnevin, &c. He enters into a calculation on a proposed density of 75 persons to the acre instead of 95.8, and arrives at the conclusion that the scheme will involve the rehousing of about 60,000 inhabitants in the extra-urban area. If this were carried out it would consequently reduce the present high general density of the city. He would acquire 430 acres in the Crumlin area, 400 in Cabra, and 166 in Drumcondra, and house the people at the rate of about 60 to the acre. The radial avenues from Crumlin and Cabra would be wide enough to permit of a separate track for high-speed electric cars. The journey from any one of these three areas should not occupy more than ten minutes, and cheap workmen's tickets should be issued at certain hours. He proposes to lay out these three areas on town planning lines. The financial side of the extra-urban scheme works out as follows:—

Number of people to be housed . . .	59,570
Number of persons per acre . . .	60
Average number of houses to acre . . .	14.5
996 acres at £300 per acre . . .	£298,800
Cost of development, per acre £500 . . .	498,000
Cost of 14,000 houses at £200 per house . . .	2,800,000

For his rehousing scheme for the intra-urban area he suggests one site in Townsend street and another on an

"open space" near the Royal Barracks. In the Townsend street area the cost would be:—

Acquiring and clearing 28 acres . . .	£28,000
Erecting 444 tenement dwellings . . .	88,800
Erecting 166 self-contained houses at £300 per house . . .	49,800
Ten acres at Royal Barracks site . . .	10,000
250 houses at £300 per house . . .	75,000

These plans would mean an expenditure of nearly four millions of pounds for the housing of 64,698 persons.

The reclaiming of lands in the bay would provide at a small cost sites for large ranges of docks. Here, also, would be found space, on the north side of this reclaimed land, for new factories. Dublin, according to the scheme is to have its existing park area doubled, by the addition of 1,600 acres, made up as follows:—Local parks, 120 acres; parkways, 720 acres; North Bull Park, 760 acres. He also proposes to form nature reservations, on the style of the Yellowstone Park, which would occupy 1,100 acres in Howth and 6,000 in Wicklow. The total acreage for parks would then be something like 13,724 acres, with a length of 45 miles of parkways, or fresh air ducts.

In closing his report, Professor Abercrombie says:—"Of a town plan of such complexity it is impossible to forecast the financial prospect. The experience of Paris shows that Haussmann's estimates were generally exceeded by at least 50 per cent. At the time he was bitterly blamed, but his theory of 'depenses productives' has been subsequently fully justified. If Dublin were to embark upon a town plan of this magnitude, it would find that it would turn out a commercial success as great as that of Paris; and it would far exceed the success of Paris in its provision for the real health and happiness of the people."

## HISTORIC BUILDINGS IN THE WESTERN WAR ZONE: THEIR BEAUTY AND THEIR RUIN.\*

By the Rev. G. HERBERT WEST, D.D., A.R.I.B.A.,  
Author of "Gothic Architecture in England and France."

(Continued from last week.)

WHEN the Roman Empire fell to pieces, in most large towns the Bishop, who generally had been appointed "Defensor Populi," gradually became the sole surviving representative of law and order; and his cathedral took the place, in the eyes of the people, of the Prætor's basilica, as being the abode not only of the worship of God, but of justice and liberty for the poor and oppressed. And when in the early twelfth century the rise of the communes bound the citizens finally into one, their joy and enthusiasm found visible expression in rebuilding their ancient basilica under the guidance of their bishop, and his cathedral became also the symbol of their new-born national life, the centre of all its noblest energies.

The plans of these twelfth-century buildings, therefore, while deriving from that of the basilica, show that they were meant to be not only sanctuaries, places for the celebration of the sacred mysteries, but also for the assembling together of clergy and laity for any common purpose. The building is a vast hall with a small choir, and no solid screen between clergy and people.

But in England the cathedrals tell a very different tale. In quite early Saxon times the great Benedictine monasteries of the Continent had founded missionary daughter houses in our then heathen land. And even when, after the Norman Conquest, great churches sprang up on every side, they were all in the hands of monks, generally Benedictines, and if there was a bishop he might be abbot of the monastery whose church became his cathedral. Our cathedrals, therefore, generally stand apart from the cities to which they belong, in a separate enclosure, originally fortified, in which we find them still nestling amid the elms of their quiet close.

\* The second of three lectures delivered before the Royal Society of Arts. For a full treatment of the subject see the author's "Gothic Architecture in England and France." (London: Bell & Sons, 1911.)

Such contrasted views as those of Chartres and Lichfield, Wells and Rouen, sum up completely the stories of the two national churches and enable us to realise how completely the French cathedral was the centre of the life of the city; how entirely the English one was detached from it.

And instead of the great assembly hall of the early French cathedral, we find in Norman England a more purely basilican plan with a single or triple apse. Then, as the churches cease to be merely abbeys and become cathedrals also, and so have to serve a double purpose, the apse is replaced, as at Lincoln, by a greatly extended choir which with the eastern transept and chapels formed the church of the monks, with a special approach from the cloister, while the western transept with its chapels and the immense nave were the cathedral and parish church cut off from that of the monks by a heavy stone screen—almost an iconostasis, with a central door and an altar on either side. Also, since the monks did not need a public procession path in their own church round the high altar, we do not find an ambulatory as in France, but they reverted to the Saxon square east end, and obtained their procession path in sight of the people by placing another screen westwards of the rood screen, with a central altar and a door on each side of it, and the rood above.

We shall also find that whereas the builders of the French cathedrals handed down as craft secrets their learning and traditions, so that the constructional development of French Gothic is the result of the severest logical reasoning from first to last, the English cathedrals were frequently built under the direction of the monks, if not actually with their own hands, as at Gloucester. There is consequently a comparative absence of scientific tradition, much less coherence in purpose and expression, but more individuality and local originality. In France traditions grow stronger and more binding as the art falls more and more into the hands of the great guilds and becomes less and less the expression of popular feeling, till it dies stifled by the swathing bands of invariable formulæ. But English architecture—less popular at first, but freer in its efforts and expression—comes always more and more into touch with the national sentiment and finally develops an entirely new form which never really died, but, adapting itself to the social evolution of the nation, gradually ceased to be chiefly ecclesiastical, and—passing on from the cathedral and the monastery to the village church and the crenelated manor—at last, under the Tudors, gave rise to the domestic architecture of that sturdy middle class which has always been the backbone of the English nation.

Thus while France was rearing Renaissance châteaux for her luxurious nobles whose power had not been broken as in England by civil war, the English squire and his tenants, still standing side by side as at Crécy, were going on building their country houses and farms on the old lines—adding a new aisle to the parish church, raising a grammar school in the village street, or providing a college at Oxford or Cambridge to receive their boys.

The general aspect of mediæval architecture in the two countries is therefore quite different, and the difference grows greater as time goes on, for English Gothic architecture was not introduced from or dependent on France. After the introduction of the Norman style just before and at the Conquest the influence of French art on English was very slight. Now and then an isolated case of importation appears, as in the earlier part of Canterbury, inspired by, but inferior to, Sens, and in Westminster, which is entirely French in plan but English in detail; but otherwise English Gothic is purely national from the very first. Indeed, national characteristics reappear directly after the Conquest, when Norman work was largely modified by the reappearance of Saxon traditions, the square east end, the high narrow lancets, the south porch, and the great length of the nave. Indeed, the influence was rather the other way, for it seems probable that, as Monsieur Enlart has suggested, flamboyant tracery and the ogee or reversed arch were

introduced by the English into France during the Hundred Years' War, when native French architecture was almost at a standstill except in the districts occupied by the English.

It is indeed the essential difference in national character which reappears in national art. The one is logical looking to the future; the other, opportunist, living in the present. French mediæval architecture of the Royal domain passes through a process of continuous evolution from its first appearance to its final decay. It took its origin in the district of Soissons as the result of the meeting of two streams of influence; one from the east given by the noble churches of the Rhine provinces where the traditions of the great art renaissance of Charles the Great had developed into the grandest of all the Romanesque styles; the other from Burgundy in the south, where, at Dijon and Cluny, Lombard influence had combined with the classical memories of Provence, and had passed upwards through Champagne to north-eastern France. The story is fairly clear, though some of the links are already lost and few if any will be left after the war, as the whole district is in the hands, or within reach of the guns of the Germans. The earliest of these, Tournai, is one of the noblest Romanesque buildings left. It rises strikingly above the houses on the left bank of the Scheldt, and its five central towers and two western turrets form a grand group very like that of Spire.

The round-ended transepts are a distinctly Rhenish feature, which we find reproduced at Noyon, and with an aisle and extremely beautiful detail of an almost Gothic character at Soissons, of which but little is now left. Tournai belongs to the end of the eleventh century. Noyon, which was originally an abbey in the diocese of Tournai, was begun in 1131 by Bishop Beaudoin, about ten years before his intimate friend Abbé Suger began the abbey of St. Denis; and Notre Dame of Paris, which was largely influenced by St. Denis, was begun some twenty years later, about 1160. At Noyon the Lombard influence is clearly seen in the alternation of piers supporting three vaulting ribs and columns which carry only the intermediate rib of the sexpartite vault. The choir of St. Remi of Reims and the nave of Laon are very like Notre Dame; and Soissons, the sister church of St. Remi, but some fifteen years (1180) later, is already suggestive of Amiens in the columns. Through them all runs the same principle gradually unfolding itself in strict logical sequence.

In England there is nothing like the same continuous development; there is no systematic logical pursuit of one distinct scientific and artistic ideal, no distinct rise, summit and fall as in France; no single scheme of vault construction giving unity to the drama; but the story is presented, as it were, in some seven independent tableaux connected together, but shown one after another, and threaded, not on the string of a continuous scientific principle, but on that of the varying religious and social history of the nation, and presented in succession by the dominant personality of the period. The monk comes first and builds the great Norman abbeys, then the noble, who enshrines himself in the floriated niches of the Decorated style, and lastly the citizen who covers his churches, like his comfortable rooms, with Perpendicular panelling. Consequently no such classification as that of the seven periods of English Gothic is possible in France, where we pass gradually step by step from the stolid Romanesque of Tournai to the restless Flamboyant of Abbeville. The only sudden break is when Flamboyant tracery is introduced by the English at Amiens during the Hundred Years' War as one of the experiments which they were always making on window, vault, and wall surface, but never allowing to become frozen into routine, always passing on to some other idea which seemed more adapted to the requirements of the moment. Thus much as to the influence of the history and national character of the two countries on their art. Let us now turn to its constructional development in each case, beginning with France.

From the time when Christian art began to revive in the eleventh century, the efforts of all builders in the ancient Roman provinces of Western Europe were centred in the attempt to do with small materials and a limited supply of unskilled labour what the Romans themselves had never even essayed with building resources such as the world had never before seen—to make the thin and isolated walls of the three-aisled basilica, which by long use had become the recognised form for the Christian church, carry the same stone or concrete arched roof or vault as the enormously thick walls of the Romans. The difficulty was this—"an arch never sleeps," and an arched roof, or tunnel vault, is always trying to thrust down the walls which carry it. Roman vaults were of two kinds, a continuous tunnel or barrel vault, and an intersecting vault, formed by dividing the plan of the building into squares and covering each square with two short tunnel vaults at right angles to each other and crossing in the middle, where they form a projecting arris or groin on each diagonal. In this intersecting vault the outward thrust of the arch is not continuous, but is all concentrated on the four corners of the square, and if they are made strong enough, or sufficiently buttressed, the spaces under the arches on the four sides need not be walled in at all. This sort of vault could be managed by these early builders on a small scale as in the low and narrow aisles of a church, but it was beyond their power to put it over the high thin walls of the nave. At last, at Durham (between 1093 and 1133), and a little later at St. Denis (1140), the idea was hit upon of building two permanent stone arches or ribs diagonally from corner to corner of each square, instead of movable wooden centrings, and of covering in the triangles between these with rows of smaller stones arched across from rib to rib.

Then the only thing needed was to prop up sufficiently the columns or piers which carry these cross ribs at each corner of the square. This prop or buttress must be brought to bear as nearly as possible at the springing of the ribs where the thrust is greatest, or a little above it, or better at both these points. This was done at Durham and at Caen by a complete stone arch thrown across the upper gallery or triforium at the back of each pier, and better at Gloucester by a quarter arch butting against the pier. But as the nave walls had to be much higher than the roof of the triforium gallery in order to get space for the windows of the clerestory, those buttressing arches came below the springing of the ribs, which is where they are really wanted, if they were kept under the roof of the triforium. So they were raised above the roof, and at Chartres and in all the beautiful later examples, at Amiens, are made double, so as to buttress both the springing and a point above it. Then the wall between the buttresses being useless soon gave place to a mere screen of painted glass. It was a bad principle thus to leave all the important constructional parts of the building exposed to the weather, but if one excuses that, nothing can be more perfect in beauty than the Gothic cathedral. But, as always in the work of man, only for a moment did these stern reasoners and perfect artists rest on the summit of their achievement. Beauvais is a literal example of that "vaulting ambition that o'erleaps itself." The chiefly passive rôle of the buttresses of Amiens in transmitting the vault-thrust must needs be exchanged at Beauvais for an active one which shall enable the main buttresses to be smaller, and the whole building lighter, though even higher than Amiens.

But while the vault thus dictated the exterior forms of the building, it affected the interior hardly less. The monocylindrical columns with great voluted capitals were soon felt to be unsuitable and illogical, as so much of their upper surface carried nothing. So in the later columns of Notre Dame the vaulting shafts stand on the one-coursed capital of a column of their own, standing in front of the main pier. Later still the vaulting shafts are carried down to the ground and their capital is at the point where they carry their load; the springing of the

aisle vault and the nave arches have their columns with capitals of one course standing on either side of, and attached to, the main column which has a capital of two courses. This progress is well seen at Soissons and Amiens. We have thus the principle of continuity distinctly formulated—that every column must have its base on the ground and its capital at the springing of its arch and only there. Soon it was felt that every colonnette should have members corresponding to the mouldings of its arch, so, by a gradual transition which may be well traced at Notre Dame de l'Epine, it came to be thought that capitals had lost their meaning and that all mouldings of all arches should run down to a common base without a break, sometimes dying into one another on the way as at St. Maclou, Rouen, but reappearing below, even if their imaginary bases supposed to exist inside the main pier, but to have been turned round so that their corners project from the faces of the general base.

In England the story is very different. Although we were the first to make a real Gothic ribbed vault at Durham, we never allowed the determination to have a stone roof to our churches to influence the whole design—indeed, we were quite content with an open wooden roof, which the French never were. An English cathedral is always the Norman abbey church in essentials, even when the details have become Gothic. Now the Norman church consisted of three nearly equal storeys set one upon the other with little or no vertical continuity, but with the chief beauty sought in horizontal perspective as at Wells, which forms a most striking contrast to such a church as Beauvais. In France the eye is led upwards at once by the vaulting shafts to the vast height of the roof; in England eastward by the pier arches along the immense length of the nave. In England the vaulting shafts hardly ever run to the ground, but stop above the nave columns, which are designed to be beautiful in themselves and not as part of a whole. They are not in various groups or sizes so as to mark distinctly their various purposes, to correspond with the arches or ribs which they represent or carry, but so as to bring in the greatest number of detached or semi-detached shafts, some of which may even have nothing to carry, and since these whenever possible were of Purbeck marble, which could only be got in short lengths, circular bands had to be introduced and the abacus of the capital became circular also instead of square as in France.

(To be continued.)

### AUSTRALIAN PARLIAMENT BUILDING COMPETITION.

THE Government of the Commonwealth of Australia have decided against the further postponement of the competition for the Federal Parliament Building at Canberra. The Secretary of the Royal Institute of British Architects has received the following letter from the Office of the High Commissioner in London, dated September 18:—

"Sir,—With reference to the deputation which waited upon the High Commissioner from your Institute respecting the competition for the Federal Parliament House at Canberra, I am directed by the High Commissioner to state that, having communicated by cable with the Commonwealth Government, he has now received a cablegram in reply as follows:—

"With reference to your telegram of September 5, the Government, after careful consideration of the whole matter, including the objections of Victoria and British architects to approved resumption of the competition, considers it advisable to proceed, owing to the fact that after the war the rebuilding of Europe will occupy the attention of British and Continental architects to such an extent that they will not be prepared to compete. Further postponement will only accentuate the difficulty, and meanwhile the large expenditure which has been incurred renders early occupation of the capital very desirable. The work will also provide employment for hundreds of Australians after the war."

"I am, Sir, your obedient servant,  
(Signed) R. MUIRHEAD COLLINS."



## TESTS OF REINFORCED CONCRETE FLAT SLAB STRUCTURES.\*

### I. INTRODUCTION.

1. *Purpose and Scope.*—It is the purpose of this bulletin to present the results of certain tests made on four reinforced concrete buildings and one reinforced concrete test structure. These tests were made with a view of getting experimental information on the action of the concrete and the reinforcing bars in floor slabs of the flat slab type of building construction. Data were obtained also on the bending action of the supporting columns. Efforts were made to find the distribution of stress in the bands of reinforcement both laterally and longitudinally, and that of the compression stresses in the concrete on the opposite face of the slab; these in the regions of both the negative bending moment and of the positive bending moment.

It will be appreciated that the circumstances surrounding the floor test of a building are unfavourable to securing definite and uniform quantitative results. The structure is not homogeneous. There is a distribution of the resistance afforded by the structure to parts beyond the portion which is loaded. Effects of changes in temperature are troublesome. The stresses developed in the steel and in the concrete are small, and there is considerable variation between parts which are supposedly similar in action. The conditions under which the measurement of deformation must be made are unfavourable to securing exactness. The location and presence of the loading material also add to the difficulties of the work.

It will be seen that it is impracticable to obtain complete information or to formulate conclusions which are entirely definite. Only general results and conclusions of a qualitative character may be expected. However, it is believed that the tests herein recorded bring out information of value on the action of reinforced concrete flat slabs and of the supporting columns. Since among engineers there is such a marked variation of opinion concerning the action of the flat slab, and since there is such uncertainty in the analysis of the flat slab, it is believed that the information given will be regarded as adding to the general knowledge of this subject, and that it will be useful in considering many features of the design of buildings of the type tested.

2. *General Statement of Tests.*—The structures tested and the arrangements for the tests were as follows:—

(a) Shredded Wheat Factory, Niagara Falls, N.Y. Flat slab floor with two-way reinforcement. Designed by Corrugated Bar Company, Buffalo, N.Y. Building built by Braas Brothers, contractors, Niagara Falls, N.Y. Tested by Corrugated Bar Company.

(b) Soo Line Freight Terminal, Chicago, Ill. Flat slab floor with four-way reinforcement. Designed and built by the Leonard Construction Company, engineers and contractors, Chicago. Tested by co-operation between Leonard Construction Company, Central Terminal Railway Company, and the Engineering Experiment Station of the University of Illinois.

(c) Schulze Baking Company Building, Chicago, Ill. Flat slab floor with four-way reinforcement. Designed by Lieberman & Klein, engineers, Chicago. Built by McLennan Construction Company, contractors, Chicago. Tested by Mr. Slater for American System of Reinforcing. The contractors placed and removed the loading material.

(d) Worcester Slab Test, Worcester, Mass. A sixteen-panel slab having four different designs of reinforcement. Constructed especially for the test. Built according to plans prepared by B. S. Brown, consulting engineer, Boston. Tested by co-operation between Mr. Brown, Worcester Polytechnic Institute, and the Engineering Experiment Station of the University of Illinois.

\* Abstract from Bulletin No. 84 of the Engineering Experiment Station, University of Illinois, U.S.A. (Obtainable from Messrs. Chapman & Hall, Ltd., London.)

(e) Curtis-Leger Company Building, Chicago, Ill. Flat slab floor having four-way reinforcement at interior of panel, and two-way reinforcement in region of columns.

Designed by Barton Spider Web System, Chicago, and built by the Simpson Construction Company, contractors, Chicago. Tested by the Engineering Experiment Station of the University of Illinois with the assistance of the engineers and contractors.

### II. THE SHREDDED WHEAT FACTORY BUILDING TEST.

*Summary of Results.*—The principal results brought out in the foregoing discussion are as follows:—

1. There was a considerable increase in the deformations in both steel and concrete during the fifty-six hours of retention of the load.

2. Upon the removal of the load from the six panels, there was an increase in the deformations across the centre line of the three panels which remained loaded (section of positive bending moment). There was a decrease in the deformations across the side edges of the area remaining loaded (sections of negative moment). There was also a decrease in the deformations in the direction of the side edge of the loaded area in those bars under the load which lay near this edge.

3. The positive bending moment for a panel width corresponding to the deformations measured in the reinforcing bars in one direction was found to average 0.021  $Wl$  for a panel width; the negative bending moment found in the same way was 0.026  $Wl$ . These values may be of interest in comparing the results of this test with the results of other tests. It must be understood, however, that these do not represent values of the bending moment coefficients which should be used in design.

4. The distribution of stresses in the reinforcement across panel edges and across panel centre lines was substantially uniform, taking averages of the several sections. The variation from uniform distribution of the moment factors for these sections corresponds closely to variation in the slab thickness and in the distribution of the reinforcement.

5. The measurements show that a large bending moment was developed in the basement columns under a partial loading of the slab.

6. In the lintel beams cracks were found on the interior side near the ends, which probably were caused by the twisting action produced by bending moment developed in the slab at its edge by the load on the wall panel.

### III. TEST OF THE FLAT SLAB OF THE SOO LINE FREIGHT TERMINAL.

*Summary of Results.*—The following comments may be made on the test of the Soo Terminal Building:—

1. The deformations measured in the steel and in the concrete of the slab were very small, in many cases smaller than the possible errors of observation. The tensile stresses developed in the reinforcement being so small, the tensile strength of the concrete must have played a very large part in the bending resistance of the slab. It appears also that uneven settlement of the footings under the applied load modified the action of the structure.

2. With the development of such low stresses and the uncertain action due to uneven settlement of the footings, the results of the test may not be used to throw light on the mechanics of the slab and on the distribution of stresses over the slab in the way it was hoped they could be used. As would be expected, an increase in the stress in a cross band under the loaded area was found when the load was changed from four panels in the form of a square to five panels in a row.

3. Marked bending was found in the columns at the edge of the loaded area. The point of inflection of the elastic curve of flexure of the columns was about two-thirds of the distance from the bottom of the depressed head to the upper surface of the basement floor, which

is the location to be expected for a column fixed at the bottom and having a rigid connection with the slab at the top.

4. The location of the cracks found on the under side of the slab indicates that stresses in a structure subject even to slightly uneven settlement of footings may be of different character from those found by the ordinary assumptions of design.

5. The measurements made to determine the stresses produced in the slab by dead load upon striking centres indicate that while the deformations were small in the test made, it is practicable to measure the deformations in a reinforced concrete structure due to dead load.

#### IV. THE SCHULZE BAKING COMPANY BUILDING TEST.

*Summary of Results.*—The results of the test here reported are conditioned upon a correct interpretation of the effect of the rather extreme temperature variation during the time of the test and of the assistance given by the strength of the concrete in tension. A continuation of the test to a point at which the concrete in tension had cracked generally, probably would modify many of the conclusions.

The main results pointed out in the foregoing paragraphs are—

1. Very few steel stresses higher than 6,000 lb. per square inch were found. On only two gauge lines did the observed deformations indicate steel stresses as high as 10,000 lb. per square inch. The highest of these was 14,400 lb. per square inch, but the form of the curve indicates that the initial reading may have been in error and that 10,000 lb. per square inch is a more probable value.

2. The averages of the stresses in the bands of reinforcement passing under the central portion of the loaded area were higher than averages in the bands under the edges of the loaded area. In the latter also the stresses in the inner bars of the band (the bars on the side toward the centre of the loaded area) were larger than the stresses in the outer bars (lying outside the loaded area).

3. The stresses in the reinforcement of the diagonal bands fell between the averages for the two rectangular bands for positions around the central column and midway between columns. The stresses were larger in a diagonal band at the corner of the loaded area than in a rectangular band where it crosses the edge of the loaded area.

4. The stresses in the short bars placed across the panel boundary lines were low but large enough to indicate that the bars may be effective in distributing or preventing cracks along the edge of the panel.

5. The compressive unit-deformations were low.

6. The compressive deformations across a section of the slab for gauge lines as near as possible to the edge of the depressed head were nearly as high as those across the section of the depressed head near the edge of the capital.

7. The largest compressive unit-deformation was found in the diagonal direction at the central column.

8. The portions of the slab beyond the edge of the depressed head did not develop compressive stresses on the under side in a direction parallel to that edge.

9. Moment coefficients calculated on the basis of the steel stresses developed are exceedingly low. That for a position of maximum negative moment is about twice as large as that for a position of maximum positive moment.

Especial emphasis should be placed on the fact that these coefficients cannot be taken as indicating the total resisting moment developed.

10. The indications are that the bending of the columns was an important feature of the action of the structure. The largest bending apparently occurred in a column at the corner of the loaded area.

#### V. THE WORCESTER SLAB TEST.

*The Test Structure.*—The structure on which the test was made was built especially for the test and was located near Worcester, Mass. The slab was designed with the object of obtaining information on the effect of (1) different methods of arranging and distributing the reinforcement, and (2) variation in size of column capital.

In order to avoid as far as possible lack of uniformity in conditions of building and testing the different parts and in order to reduce the proportion of the number of wall panels to interior panels, the four types of design used were placed in the four quadrants of a single slab four panel lengths (56 feet) square. This gave a group of four panels to each of the four designs and a column in the centre of each group. The arrangements of slab reinforcement at the column capitals for the various groups were as follows:—

*Group I.*—All tension reinforcement was placed in the diagonal bands. The rectangular bands lay in the bottom of the slab and afforded compression reinforcement at the column capitals.

*Group II.*—Both rectangular and diagonal reinforcement were in the top of the slab. There was no reinforcement in the bottom of the slab at the columns.

*Group III.*—All tension reinforcement was placed in the diagonal bands. The bars of rectangular bands did not pass over the column capitals. There was no reinforcement in the bottom of the slab at these positions.

*Group IV.*—Reinforcement was the same as in Group II, but the column capital was smaller.

The amount and distribution of the tension reinforcement at the column capitals in each of the four groups were such that if planes were passed cutting each band at right angles outside the column capital the total area of steel in the top of the slab so cut in an angular distance of  $180^\circ$  around the column was 4.86 square inches, the same for all groups. It should be noted, however, that the effect of the reinforcement in producing resisting moment across a panel edge will not be exactly the same for all groups. In the group having only diagonal bands a calculation of the rectangular component of the resisting moment (the component in a direction at right angles to the edge of the panel) will be about one-sixth greater than the rectangular component of the resisting moment of the reinforcement in the groups having both diagonal bands and cross bands. This area includes the section of tension reinforcement which in Groups II. and IV. consists of two rectangular bands and two diagonal bands; in Groups I. and III. this area is the section of two diagonal bands.

At points midway between columns, both in the rectangular and in the diagonal directions, the amount and distribution of the reinforcement were the same for all groups. In Group III. the bars in the rectangular bands ended near the probable points of inflection and were not bent up in any way. The total area of cross-section of two rectangular bands and two diagonal bands was 4.2 square inches.

Midway between columns two bars  $\frac{3}{4}$  inch in diameter, 6 feet long, were placed in the top of the slab across the panel boundary, that is, normal to the direction of the rectangular bands of reinforcement.

The panel length was 14 feet centre to centre of columns in all panels. The diameter of the top of column capital was 4 feet 6 inches for Groups I., II., and III., and 2 feet 9 inches for Group IV. The ratios of these capital diameters to the panel length were 0.321 and 0.196 respectively. The average of all the measured thicknesses of the slab was 4.93 inches. The average measured depth to the centre of gravity of the bands of reinforcement was 104 inches midway between columns and 1.63 inches near the columns for the four groups.

The footings for the interior columns were 5 feet square, for the corner columns 3 feet square, and for the columns at the edges 4 feet square. It seems likely

that the unit pressure on the soil was greater for the interior footings than for the footings at the corners and edges of the slab.

*Summary of Results.*—Although settlement of footings puts a serious limitation on the general applicability of the results of the test the following summarised statement of the information obtained is made:—

1. In groups having capitals of the same size the variation in stress due to the variation in arrangement and distribution of reinforcement was less, apparently, than that due to uneven settlement of columns.

2. At a load of 102 lb. per square foot the steel stress at the small capital (Group IV.) averaged about 50 per cent. greater than the stress at the larger capitals. The diameters of the capitals were respectively 0.196 and 0.321 times the panel length. The large stress in Group IV. may be due partly to other causes, but it is believed that the small capital is the most important cause.

3. The wall panels and corner panels showed higher steel stresses and generally more pronounced cracks than did the interior panels.

4. This test does not indicate that the wall panels (not the corner panels) suffered because of the absence of wall beams.

(To be continued.)

### STANDARDISED STEEL CONSTRUCTION.

In a recent issue of "The Architect" we reviewed a book lately published, dealing with the practical design of steel-framed structures by means of standardised units. The advantages of such a method for many classes of buildings are manifold and obvious. The principle of standardisation is, indeed, one which has been adopted in building for a very long period. Bricks have been made of standard sizes, if not from time immemorial, at least as far back as the memory of living builders extends; and it is unthinkable that we should now revert to the irregularity, however charming in its æsthetic quality, of the brick-makers of the seventeenth century. We might extend to considerable length a list of standardised parts of building construction.

Standardisation of units in construction makes for reliability and for economy of cost. Reliability because each unit conforming to the standard is of known and definite capability, and the properties of the whole structure can be at once accurately estimated. Economy of cost lies both in manufacture and in application. Particularly is this the case in steel-framed structures, where a very large proportion of the cost of a single unit lies in the preparation for its production; in the drawing office and the calculating desk to begin with, in the making of templates, the arrangement and fitting of machinery.

In the Reid Unit Construction system for steel-framed structures, which is now being put on the market by Messrs. F. Braby & Co., Ltd., the normal unit is a King-post truss of rolled steel angles and plates made to standard templates, by which great accuracy is assured, and in assembling which only one diameter of bolt is used, thus simplifying the operations and diminishing cost.

By the grouping of Reid "Standard Units" roof trusses of any desired span, girders and verticals can be formed with the utmost facility, cheapness, and reliability. The system is therefore admirably adapted for the construction of either temporary or permanent structures in the large class of buildings which may be included in the category of manufacturing premises. Nor is it confined to these, for steel-frame skeleton construction is becoming more and more a necessity for buildings of any magnitude, and is not incompatible with the most fully developed modern architecture. Therefore the application of the principle of "standard unit" steel-frame construction is capable of extension to every class of building whether such building is characterised as architecture or engineering.

### TWENTY-FIVE YEARS OF AMERICAN ARCHITECTURE.\*

By A. D. F. HAMLIN.

FIFTY years ago the close of our Civil War was but one year in the past. If we divide the half-century since then in two, the year 1891 may be fitly taken as marking the close of the early renaissance of American architecture and the beginning of a new period of activity and progress. If this period has been less remarkable than that which preceded, in the contrast between its earlier and later years, it has certainly been extraordinary in the extent and quality of the works it has seen rising from their foundations. Only when we consider concretely what was in existence in 1891 and compare it with what is in existence to-day, do we begin to grasp the extent and significance of this marvellous activity.

The first ten years of the half-century saw little or no emergence from the abysmal depths to which our architecture had sunk in the Civil War period. It was in 1876 that the awakening began. Trinity Church in Boston, the Philadelphia Centennial, the rise of H. H. Richardson, the maturing of the work of architects like R. M. Hunt, George B. Post, McKim, Mead and White, Peabody and Stearns, Ware, Van Brunt and Howe, Burnham and Root and others; the entrance on the stage of architectural practice of scores of trained young men newly from Paris; the establishment of the Columbia and other schools of architecture, the opening of new art museums and schools and the expansion of old ones, all these imparted to the architecture of 1876-1891 an exhilaration, an enthusiasm as of a host winning new conquests, which the older men of the profession can recall, but of which the younger men can have little conception. That period was marked by the immaturity, the enthusiastic confidence of youth, less conscious of its deficiencies than of its opportunities.

The profession has in these last twenty-five years grown more mature, and also more sophisticated, more self-conscious. There are a hundred capable architects now where there were ten in 1891—and the ranks are beginning to be over-crowded. The actual achievement has been vastly greater than in the preceding quarter-century; its average performance is vastly superior, its greater masterpieces undoubtedly surpass those of that earlier time; the general public taste has notably risen to a higher level. But the earlier enthusiasm has largely evaporated. The requirements laid upon the architect have enormously increased the complexity of his task, and the struggle of competition has become intense beyond the limits of a generous and enthusiastic emulation. The commercialising of large building operations has raised new and often embarrassing problems of professional ethics and practice.

Moreover, the most pressing needs of the nation have been measurably supplied. In the earlier period, the extraordinary awakening of the country to its artistic destitution gave occasion for an equally extraordinary demand for new and better buildings for existing needs. A relatively small body of trained architects had all they could do to supply at the same time this new provision for existing needs, and also that for the constantly increasing new needs of growing communities and freshly created institutions. The country was prosperous. The "New West" and "New South" were rapidly developing, and in spite of the activities of the Knights of Labour, building operations were not greatly disturbed.

All these conditions have changed in the last quarter-century. The "panics" of 1893 and 1907 sadly checked the tide of architectural activity. Strikes and lockouts on a colossal scale, and during the last two sad years the frightful war in Europe, have again and again thrown the financial and the architectural world into confusion. The tremendous tide of western development

\* From the "Architectural Record."

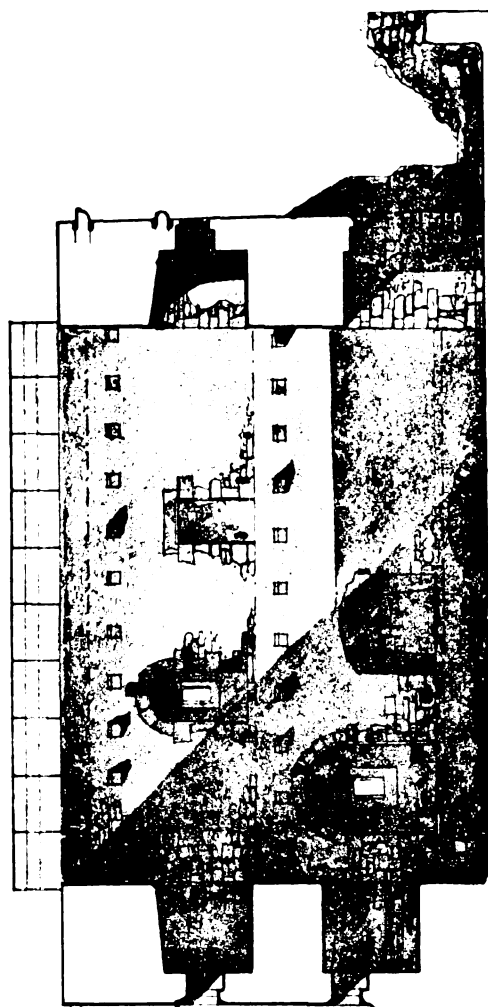
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The Architect, Sept. 29th. 1916.

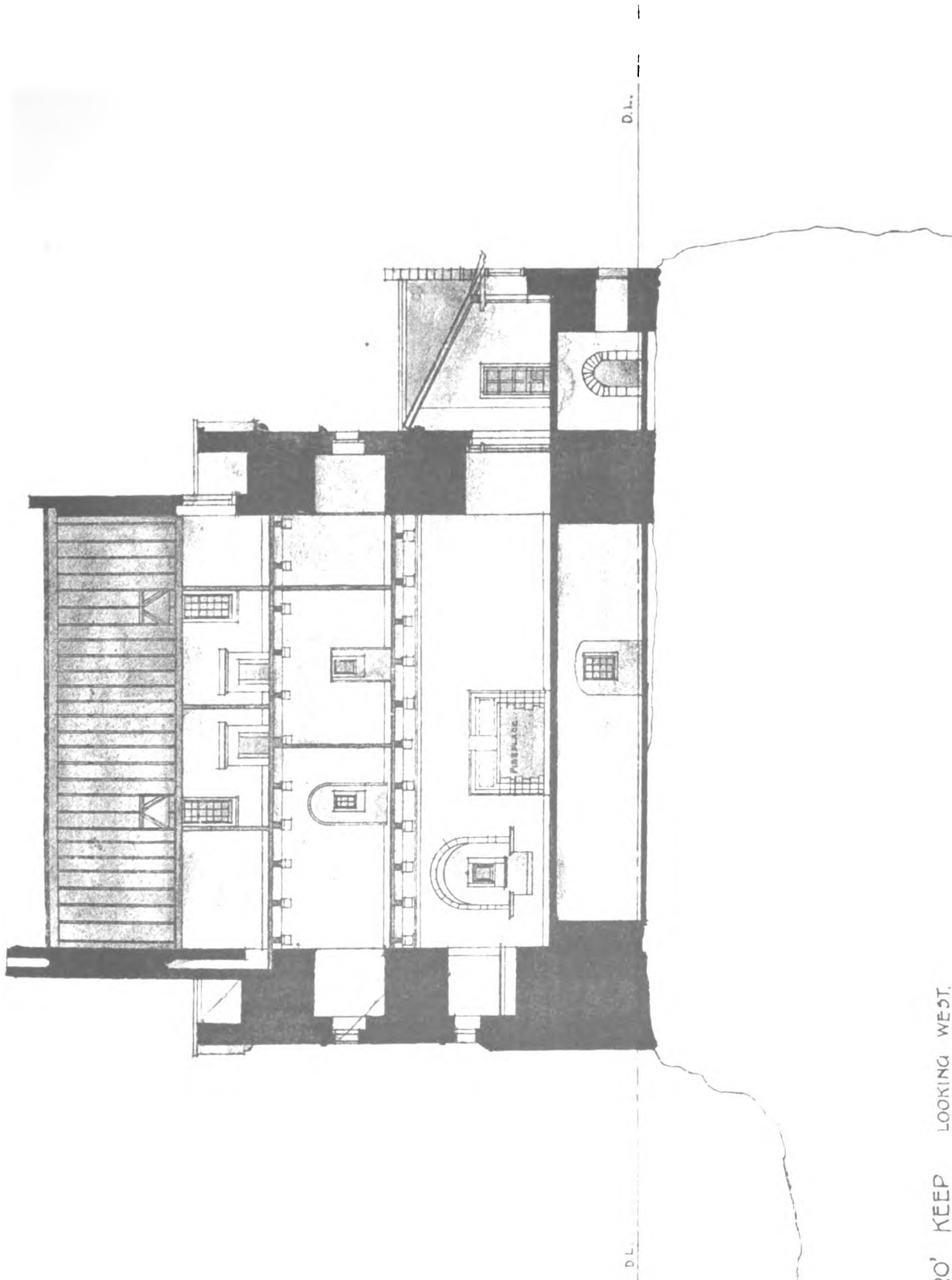
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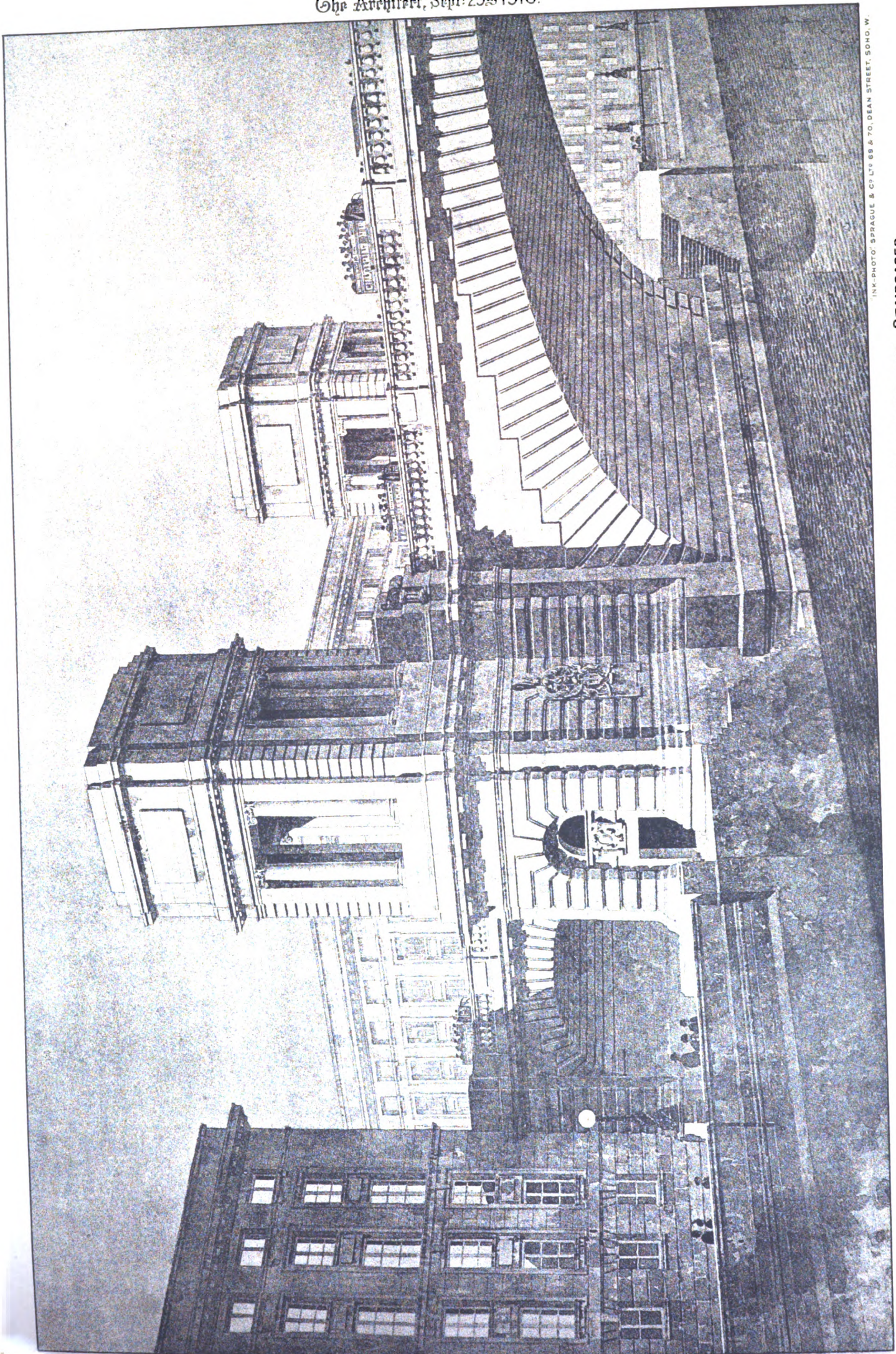
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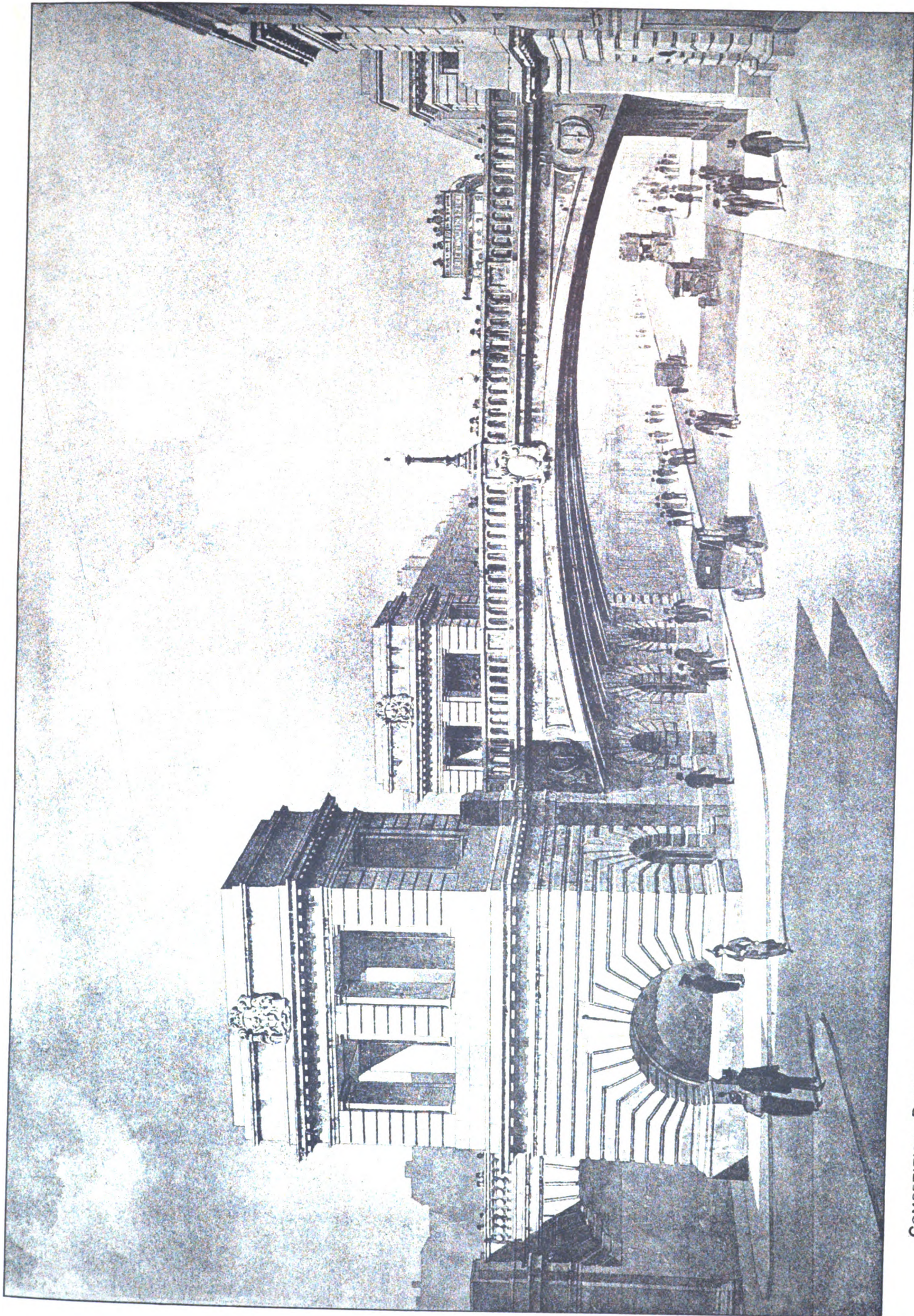


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COMPETITION DESIGN FOR ST. PAUL'S BRIDGE, LONDON. VIEW OF SOUTH ABUTMENT AND STAIRCASES.

By MR. J. J. ROBSON, M.I.C.E.





COMPETITION DESIGN FOR ST. PAUL'S BRIDGE, LONDON. VIEW OF BRIDGE OVER QUEEN VICTORIA STREET WITH STAIRCASE BUILDINGS.  
By MR. J. J. ROBSON, M.I.C.E.

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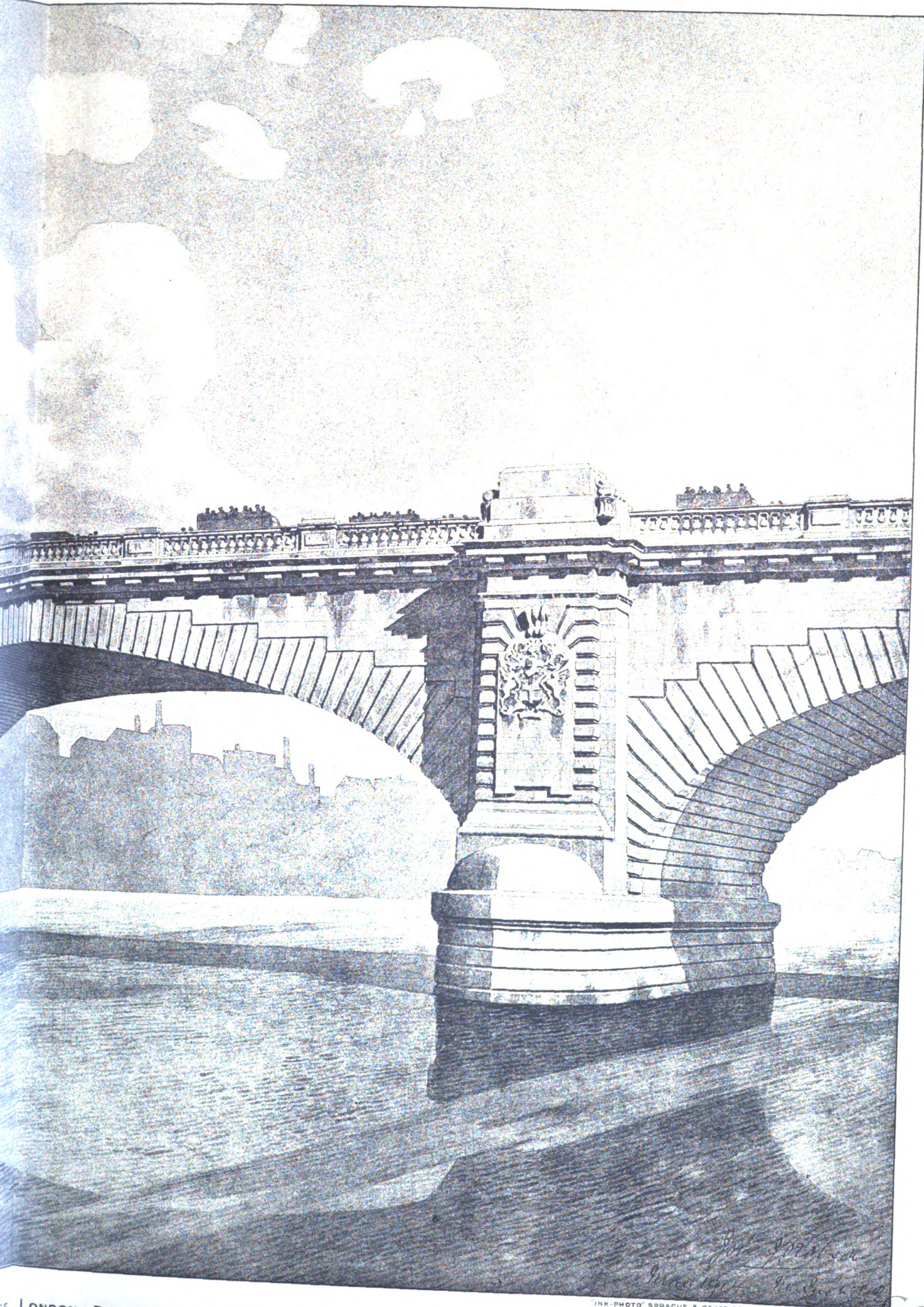


COMPETITION DESIGN FOR ST. PAUL'S BRIDGE, LONDON

(Royal Academy Exhibition, 1916.)

By MR. J. J. ROBSON





BRIDGE, LONDON. PERSPECTIVE OF CENTRAL ARCH.  
OBON, M.I.C.E.

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reached its flood years ago, and if it has not begun to ebb, it is at least quiescent. The country has been fairly well supplied with buildings; overbuilding is complained of in some of the great centres. The relatively diminished demand for new buildings falls upon a greatly increased army of capable architects, among whom the prizes are very unequally distributed. It is much harder now than in 1891 for a young architect to start in independent practice, and his chances of securing important commissions are relatively smaller. There are more big firms to absorb these than there were then, and more young architects like himself to compete for what does not go to their big rivals. Undoubtedly the prospects are less certain, less alluring than they used to be.

On the other hand, the American architect of the last twenty-five years has enjoyed, and enjoys to-day in increasing measure, a host of advantages denied to the men of earlier days. The facilities for study, the educational resources, have been immensely increased. The volume of architectural literature available in libraries has grown tenfold. The Society of Beaux-Arts Architects has provided every section of the country with ateliers and stimulating opportunities for self-improvement in design and draughtsmanship. A remarkable advance in the public taste and in standards of performance has made possible a quality of work which was out of the question twenty-five years ago except in a very few centres, and only in exceptional cases in these. The architect of to-day has at his disposal materials and resources both for construction and decoration which have been created within the quarter-century. Competitions have been systematised under regulations which have greatly reduced the scandalous practices that used to be rife. The whole profession of architecture has been raised to a higher level in the public esteem as well as in the tone and standards of its own practice. The American Institute and other organised bodies of architects have developed, throughout the country, an esprit de corps, a solidarity, a community of interest, which have more than kept pace with the increasing intensity of competition.

## II.

The most noticeable features of our architectural progress during the last twenty-five years have been the development of steel skeleton construction and the influence of several great exhibitions, especially of that at Chicago in 1893. The steel skeleton was born and first developed in Chicago. This statement is made despite the fact that in 1888 the late L. A. Buffington of Minneapolis patented a system of metallic skeleton construction which embodied many features of the present system. But most of these features were not new; each had been used in varying forms in earlier buildings, and the Buffington column was an unscientific laminated affair of flat plates, wastefully and inefficiently combined. Mr. Buffington failed to induce reputable lawyers to prosecute his suits for infringement against Chicago and New York architects. Whatever may have been the merit of his claims of priority in the conception of the steel skeleton, it was the Chicago architects Jenney and Mundie who first gave the conception practical form and carried it into successful execution: to them belongs the credit for its design in its essential features. Thus it is from the metropolis of the Middle West that the two most potent forces emanated that have transformed modern American architecture.

The steel skeleton was really born in 1889; but the year 1891 saw it accepted as more than a mere experiment, and we may say that from that year dates its definite adoption in American architecture. It is fair to consider it as the fourth of the great structural advances which have given architecture really new resources. The Roman vault for the first time made vastness of unencumbered space attainable. The Gothic ribbed vault and flying arch and buttress created the masonry skeleton and made possible the majestic loftiness and airy lightness of the mediæval cathedral;

another new architecture was created. The metallic truss, developed towards the middle of the last century, permitted a wholly new spaciousness and lightness of construction; our vast exhibition halls, train-houses, and armouries would have been impossible without it; again, a new architecture came into existence, hardly recognised as a new architecture. The steel skeleton, the last of the four developments, has brought into being a new loftiness and lightness of construction; it has freed architecture from the limitations of massive walls which had for ages kept it from assuming otherwise than in the frail and beautiful but practically useless form of the spire. We have not yet solved the problem of the ideal artistic treatment of the sky-scraper, but we have gone a long way towards it; and meanwhile our architecture has been endowed with wholly new resources and possibilities.

If the influence of the Columbian Exhibition was less revolutionary than that of the invention of the steel skeleton, it was nevertheless very far-reaching. The ten architects who collaborated in that remarkable enterprise in agreeing to adopt a uniform cornice-line and a general neo-classic or Renaissance style for the exteriors of the chief buildings, signed the death warrant of the still lingering Richardsonian Romanesque. The "White City" was scoffed at by many of our French visitors as nothing but "École" projet architecture. In Europe the movement of protest against the academic and traditional had begun; the visitors were surprised and disappointed to find us still in the fetters of the bondage they were trying to throw off. They failed to appreciate the fact that we had never yet been under this bondage; that this was the first time in our history, at least since Thomas Jefferson's modest experiment at Charlottesville, that our architects had had an opportunity to design, or our people to see, a monumental group of buildings planned as an ensemble; the first time that they had seen such buildings set in an environment of gardens and architectural and sculptural adjuncts designed to enhance the total effect. The impression it produced was extraordinary. The grandeur of scale and the intrinsic beauty of the Fair alike elicited universal enthusiasm. There were some, it is true, who deplored the whole scheme and character of the display as false in principle, un-American, meretricious, and they regretted the imposition upon our people of French ideas and of a "façade architecture" of Renaissance forms as a substitute for thoughtful, original design proceeding logically from American requirements to solutions specially fitted to them. The late Montgomery Schuyler expressed this regret forcefully in his article on "United States, Architecture of," in the Sturgis "Dictionary of Architecture." We of to-day feel that, whatever the justice of this criticism, there was a countervailing benefit in the impression made by the White City that outweighed its drawbacks. It was an object-lesson in the possibilities of group-planning, of monumental scale, of public decorative splendour and harmony, and of worthy landscape setting, that was of incalculable value. The detail was neo-classic, and much of it was, as we now recognise, deplorably poor; but the harmony, the general picturesque effect, the union of all the arts in producing it, were merits quite independent of the styles used. Moreover, not all the buildings were in neo-classic styles. Adler and Sullivan's Transportation Building and Beaman's Fisheries Building, though in totally diverse styles, somehow fell into place in the general harmony, while uttering their declarations of independence of formal compulsion.

Other exhibitions since—at Omaha, Buffalo, Jamestown, St. Louis, San Francisco, San Diego—have followed the general methods of the Chicago Fair, two of them on a vaster scale, the later ones revealing more knowledge, more skill, greater resource, greater freedom, and richness of treatment than their prototype. But none has exerted so potent an influence upon the national architecture, for each has had behind it a better-trained,



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a more knowing public taste; it has lacked the sensational effect of a new discovery, of an utterly novel achievement.

### III.

Next in importance to these two epochal events in our architectural history we must certainly count the educational activities of the past twenty-five years.

The growing influence of the French school, which had contributed powerfully to the architectural awakening of the eighties, reached its highest mark during the last decade of the last century. The number of Americans in the Ecole at Paris rapidly increased, and the leading offices depended upon their return for the recruiting of their draughtsmen. With each year some among the older Paris-trained draughtsmen emerged from these offices to practise independently. In 1894 the Society of Beaux-Arts Architects began its remarkable campaign of education by the establishment of "ateliers" and "concours" of "projets," which have since been extended into all parts of the United States. Their success has been prodigious; and despite their tendency to dwell unduly upon clever draughtsmanship and "paper architecture," they have done a great service in training competent draughtsmen, in instilling sound ideas of planning, and in fostering the artistic spirit. The general quality of American design and of American draughtsmanship has certainly been greatly raised.

But the credit for improved design and draughtsmanship does not by any means all belong to the labours of the Beaux-Arts Society. Since 1891 important architectural schools have been founded or developed in the Universities of Harvard, Pennsylvania, Syracuse, Tulane, George Washington at Washington, Washington at St. Louis, Michigan, and Minnesota; in the Carnegie Technical Schools at Pittsburgh, the Arnour Institute at Chicago, Rose Polytechnic at Terre Haute, Ohio State University, Alabama Technical Institute, and many others; while the older schools have been greatly strengthened and developed. Many travelling fellowships have been founded, and the American Academy at Rome has been built up into a strong institution. Countless night classes and "extension" classes have been established, and Princeton and Yale have built up departments of architecture which are excellent feeders for the more advanced professional courses in other universities. The influence of all these schools, conservative and academic in the main, but by no means narrow or superficial, has served to raise the standards of our architecture, and to bring it more and more into its proper place as a learned profession as well as an art; a profession in which science and general culture unite with imagination and trained taste to make it a worthy pursuit for men and women of high aspiration.

In this general raising of standards the American Institute of Architects has played an important part. Through its conventions, the meetings of its chapters, its official representations and memorials to Congress and to other authorities on matters relating to public architecture, and its consistent efforts to improve the conduct of competitions and to systematise professional ethics and practice, it has rendered great services to American architecture. These activities have been prosecuted in no spirit of exclusiveness or trades-unionism, and the profession at large, both in and outside of the Institute, has profited by them.

### IV.

It is not easy to characterise in any brief statement the architecture of the past twenty-five years. That it is extraordinarily varied, in subject, material, and style, goes without saying. That it has made remarkable structural advances is evident to anyone who takes the trouble to examine many buildings erected before 1891. Taken as a whole, it is certainly more knowing, more competent than that of the preceding period, better in all four matters of planning, construction, composition,

and decorative detail. It could hardly be otherwise, given the vast increase in the number of architects and draughtsmen trained in excellent schools in this country and abroad; and given, at the same time, the amazing increase in wealth, in general education, in resources of all kinds, of the nation at large during the same period.

Perhaps there is no better way of presenting the progress we have made than to call to mind what were some of the most noted buildings erected in the preceding quarter-century; and then to list a few of those of the later period. It is most instructive to read the late Montgomery Schuyler's "American Architecture," published in 1892. The notable buildings described in this book were various works of Mr. Richardson, the three Vanderbilt houses in New York, insurance buildings in Minneapolis and St. Paul, a number of Romanesque houses in those cities and in Chicago: not much else. Mr. Richardson's death in 1886 was not yet so far in the past that his influence had wholly lost its power; but Mr. Schuyler notes how personal to him were the excellences of his work, and deplores the weakness and ineptness of most of his imitators, who copied his mannerisms without his largeness of conception, good taste, and imagination. The tall buildings of that time were eight or ten storeys high; collectively they were referred to as "elevator architecture"; the steel-frame building had appeared it is true, but it had as yet made no impression when Mr. Schuyler wrote his book—at least upon him. If one had been asked to name the finest of recent buildings in America at that time he might have enumerated Trinity Church and the near-by terra-cotta Fine Arts Museum at Boston (now demolished); the County Court House at Pittsburgh, the Albany City Hall, some of Richardson's libraries and his Harvard Law School, the Harvard Memorial Hall, the Connecticut Capitol at Hartford, the Chicago Auditorium, St. Patrick's Cathedral, the Madison Square Garden, the three Vanderbilt houses, the "Villard houses," and the Mills Building at New York, Link's St. Louis railway terminal, and the Ponce de Leon at St. Augustine. Not another church, railway terminal, or library (except Hunt's Lenox Library at New York), not a museum or theatre or town hall could be named of any importance, that rose above absolute mediocrity; while in general our civic, Federal and ecclesiastical architecture was beneath contempt, and our railway stations were a disgrace. A sarcastic survey of American architecture in the London "Saturday Review" of that period excited considerable indignation; reading it to-day we cannot help recognising in it a large element of just criticism, though expressed with that airy superiority which Lowell so deftly satirised in his famous essay on "A Certain Condescension in Foreigners."

(To be continued.)



[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### Bruges in Danger?

SIR.—A usually reliable paper on Monday evening, the 25th inst., reproduced a telegram announcing a remarkable performance by some of our monitors and other vessels. That performance is stated to be none other than the bombardment of the Belgian coast "between Heyst and Bruges." If the report is correct, then Bruges was in peril of irreparable damage "from our guns."

Would it not have been as well if the paper in question had not published the telegram till the Editor had reassured himself by first "looking at the map"? Then he could have reassured many anxious people besides yours, &c.,

NON-IGNOTUS.



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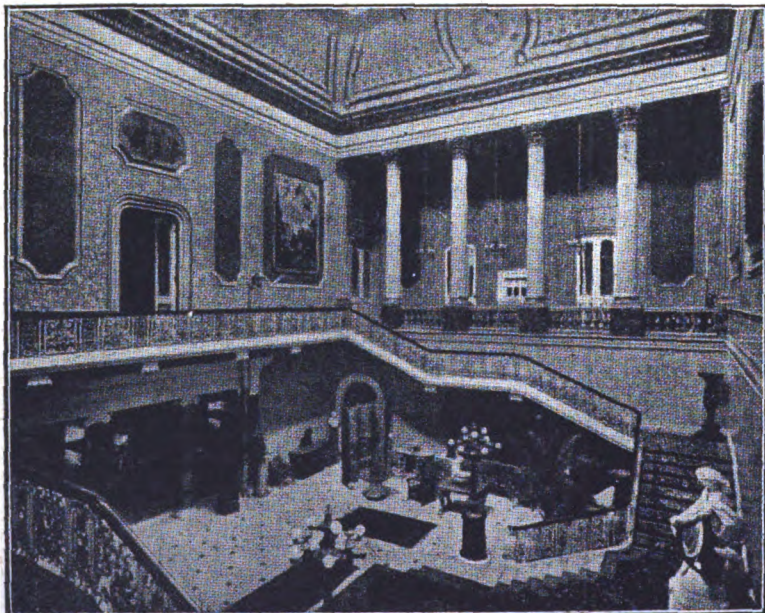
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**SS. Giovanni e Paolo, Venice.**

SIR,—In your "Notes and Comments" for this week in "The Architect," your suggestion and hope that the church of SS. Giovanni e Paolo at Venice has only been very slightly damaged is, I am afraid, premature.

I sent for a cutting from one of last week's papers, which makes, indeed, sad reading.

I know the church well and am grieved to hear that the mischief being done in Venice is far worse than is imagined.

St. Mark's narrowly escaped being hit a few weeks ago, as the little church immediately behind it—I forget the name now—was totally destroyed.

May I take this opportunity of saying how wonderfully you have kept up the tone and spirit of your paper for the last two years; indeed, I think the illustrations and contents have been better than previously.—Yours, &c.,

E. GUY DAWBER.

The newspaper cutting alluded to by Mr. Guy Dawber is the following message from Reuter's correspondent at Venice:—

The Director-General of Fine Art, Signor Corrado Ricci, the well-known art historian, has come here to ascertain the damage done in recent air raids and to arrange the work of restoration.

He found that the injury to the church of San Giovanni Paolo was much graver than at first realised. Fortunately sandbags had protected most of the interior monuments and also Verrocchio's Colleoni statue outside. The famous historic glass windows were removed at the beginning of the war. The remaining ordinary windows have been smashed and their iron frames twisted or torn out.

The façade has a desolate appearance, as the rose window has a horrible rent opening like a cavern into the darkness of the church. The dome is badly cracked. Graver still, the fourth arch on the left of the central nave has absolutely collapsed. It was struck by a bomb, which, travelling slantwise, opened another abyss of ruin in the vault of the left nave. The floor is broken in several places, while a skeleton was thrown out of its shattered tomb as if horrified at the sacrilege.

The chapel of Our Lady of Peace has been injured in several places. The stucco work has fallen and the marble is much chipped, but the altar and crucifix are untouched.

## BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### BUCKINGHAMSHIRE.

*Aylesbury*.—Building, Southern Road, for Mr. James Putman.

##### CHESHIRE.

*Stalybridge*.—Warehouse, Tame Street: extension for Messrs. Henry Simon, Ltd.

##### DORSET.

*Swanage*.—Bungalow, Newton. Mr. Pond, builder, Princess Road.

##### LANCASHIRE.

*Atherton*.—The "Railway" Inn, Howe Bridge: alterations for Messrs. G. Shaw & Co.

*Bolton*.—Dairy, Green Lane, Great Lever, for Rt. Hon. the Earl of Bradford.

Middlebrook Mill: alterations for Messrs. Salmon & Taylor.

Premises, Brandwood Street: addition for Messrs. R. Farnworth, Ltd.

Two houses, Chorley Old Road, Smithills, for Mr. J. England.

Warehouse and garage, Howarth Street, for Messrs. Norman, Isherwood & Co., Ltd.

Prospect Bleachworks, Smithills: addition for Messrs. R. Ainsworth, Son & Co., Ltd.

*St. Helens*.—No. 74 Elephant Lane: additions for Messrs. Greenall, Whitley & Co., Ltd.

Premises, Elephant Lane: additions for Lea Green Collieries Co., Ltd.

##### LINCOLNSHIRE.

*Grimsby*.—Offices, &c., Holme Street, for Messrs. Stephenson & Good. Messrs. H. & C. Thompson, contractors, Hainton Avenue.

Offices, &c., Shipyard Royal Dock, for Messrs. Charlton & Co. Mr. H. C. Scaping, Town Hall Square.

##### NORTHUMBERLAND.

*Earsdon*.—Workmen's dwellings for U.D.C.

##### NOTTINGHAMSHIRE.

*Sutton-in-Ashfield*.—Factory, Stoney Street: addition for Mrs. Walton.

##### OXFORDSHIRE.

*Banbury*.—Fire Station. Mr. G. E. Wrigley, borough engineer.

##### SHROPSHIRE.

*Newport*.—Gasworks: offices.

##### SOMERSET.

*Taunton*.—Business premises, North Street: additions and alterations for Mr. Maunder.

House, St. Augustine Road North. Messrs. F. & E. Small, builders, Staplegrove Road.

##### STAFFORDSHIRE.

*Bloxwich*.—Stable, Green Lane, Leamore, for Messrs. Griffin, Jones & Co.

Works, Fryer's Road: addition for the New Delaville Spelter Co., Ltd.

*Burton-on-Trent*.—Proposed infirmary for B.G.

*Chasetown*.—Parish church: enlargement (£1,000).

*Tipton*.—Premises, Horsley Heath, for the Denbigh Engineering Co.

*Walsall*.—Factory, Green Lane: extension for Messrs. J. Wheway & Son.

##### SUSSEX.

*Bognor*.—The "Beach" Hotel: alterations for Messrs. Henty & Co.

Offices, Waterloo Square, for the South Down Motor Services, Ltd.

##### WORCESTERSHIRE.

*Lifford*.—Premises: additions for King's Norton Metal Co.

##### YORKSHIRE.

*Cottingham Station (D.V.L. Railway)*.—Farmhouse and bailiff's cottage, Thicket Priory Home Farm. Messrs. Clark & Moscrop, F.F.R.I.B.A., architects, Feethams, Darlington.

*Dent*.—P.M. church: enlargement.

*Skipton*.—House, Stone Gappe, for Miss Horsfall.

#### SCOTLAND.

*Dunfermline*.—Proposed institute, Rosyth Naval Base.

*Gourock*.—Forty-eight cottage-homes, Reservoir Road, for H.M. Admiralty (£20,000).

#### IRELAND.

*Derry*.—Employees' houses on the Foyle, for the North of Ireland Shipbuilding Co.

THE Glasgow Corporation Sub-Committee on Art Galleries have decided to acquire for the civic collection in Kelvingrove two works which are now on view in the Exhibition of the Royal Glasgow Institute of the Fine Arts, viz.: "Richmond Castle," by J. Whitelaw Hamilton, A.R.S.A., the catalogue price of which is £150; and "Pax Dolorosa," by Allan G. Wyon, catalogue price £126.

THE Arts and Crafts Exhibition Society announce that owing to the number and variety of the exhibits to be dealt with the committee have been compelled to postpone the opening of the exhibition at Burlington House from October 2nd to the 9th. The exhibition will remain open till the end of November.

THE Rev. W. M. Lee Evans, rector of Saxby All Saints', has presented to the Lincoln City and County Museum a fine polished-stone axe-head, of neolithic type. The implement, which is made from a greenish, compact, hard stone, is in perfect condition, the cutting edge being quite sharp and clean. It is four inches in length, and two-and-a-quarter inches at its broadest point. The specimen was dug up ten years ago whilst a hedge was being planted in Saxby All Saints'. It was being used as a wedge to keep open a wash-house door when it was discovered by the rector.



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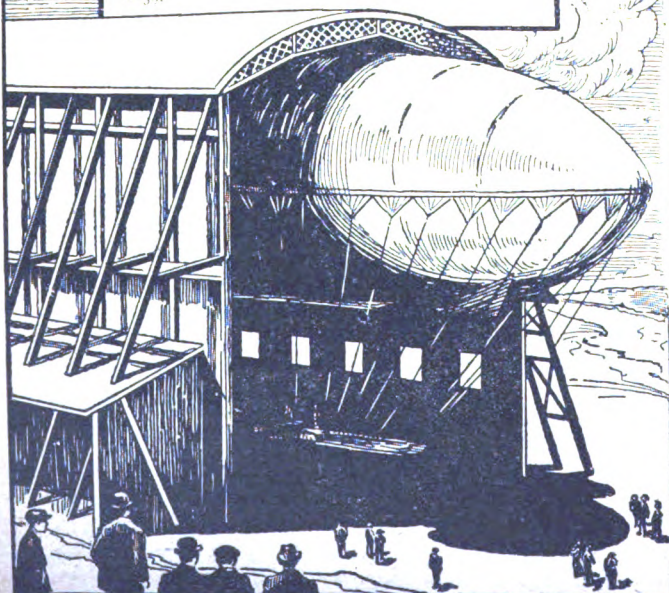
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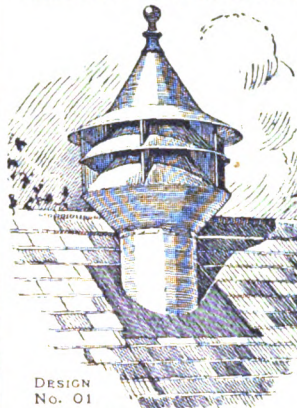
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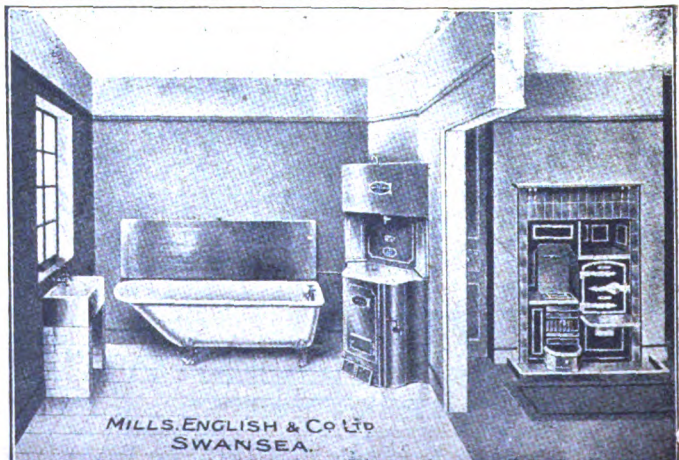
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# THE ARCHITECT

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## FORTHCOMING EVENTS.

*Saturday, October 7.*

Institution of Municipal and County Engineers : Meeting at Watford, at 11.30 A.M.

*Monday, October 9.*

British Arts and Crafts Exhibition opens at Burlington House, W.

*Thursday, October 12.*

Society of Architects : Special General Meeting, at 6 P.M.

## BUILDING TRADES' TRAINING SCHOOLS.

It is more than ever necessary at the present time that there should be a stream of highly-trained young craftsmen in the building trade ready to carry forward the barque of architecture to the ocean of full and widespread activity that will be available on the advent of peace. There will be many grievous gaps to be filled in the ranks of our skilled artificers. There will be a plenitude of work to be done, both in the making good of material damage to structures of all kinds, caused by the devastation of war and in the provision of accommodation for the increased activity of the manufacturing and commercial industry of the community, which must be pushed forward to restore the attrition of the national wealth. There is also much to be done to make up the arrears of normal industry in building, which have accumulated by the concentration of our workers on other employment more immediately connected with the requirements of a stupendous conflict; notably in housing, but equally, though less obvious, in the erection of all classes of building required for the convenience or the comfort of the community.

Therefore it is that we are pleased to see from the report just issued of the work during the past session of the Trades' Training Schools of the Worshipful Companies of Carpenters, Joiners, Painter-Stainers, Plasterers, Tylers and Bricklayers, and Wheelwrights of the City of London, that the excellent work of practical technical training in the building trades which has been carried on for several years at Great Titchfield Street is, in spite of the heavy handicap of war conditions, still being successfully prosecuted.

The reason for this success was well-expressed by the Rev. C. D. Bartlett (Chairman of the Schools) at the last distribution of prizes, in the following words:—

"The success of Technical Schools, constituted as ours are, must mainly depend upon the knowledge and zeal of the teachers, whose duty it is to train, individually, the students entrusted to their care. The Trades' Training Schools have been remarkably fortunate in this respect. They have always had capable instructors, who have put their whole heart into the work, and the result has been not only a high standard of attainment by the men in the shops during their student days, but they have gone forth into the world to do credit to their school, their instructors, and themselves. The members of our teaching staff are men of experience. They have been with us a long while. They know the purpose for which the schools were founded. They understand the difficul-

ties of young men beginning their life's work in the trades connected with building, and they take care that those who pass through their hands shall be so thoroughly equipped for their future work that there shall be for them a prospect of pleasure, as well as of profit, in the craft they propose to follow. For our teachers insist that there is a beauty as well as a purpose in every constructive work worthy to be called a building."

The high quality of the instructors in these schools may be gauged by the fact that Mr. Charles L. Hartwell, the instructor in the Life Class, has recently been elected an associate of the Royal Academy.

During the war the schools have been carried on under the guidance of Mr. Banister F. Fletcher, F.R.I.B.A., acting as deputy for his brother, the late Major Herbert Phillips Fletcher, D.S.O., whose services as Director for many years are recognised as the foundation of the success that has attended the schools.

An illuminating conspectus of the methods of the schools is found in the report by Mr. Banister Fletcher:—

"The carpenters, with seven students, meet on Mondays, Wednesdays, and Fridays. The work is of a practical and varied nature, and includes a trussed foot-bridge to span a 30-foot stream, a half-timber porch, and a garden table, besides various joints necessary in different branches of carpentry.

The joiners' class meets four nights a week and has thirteen students. Eleven of last year's students have joined the Army. There are in process of construction an elliptical dome, a circular door frame and head, and an air-tight counter case. Special attention is devoted to setting out and double-curvature work for senior craftsmen, while others are engaged upon handrails, wreaths, and scrolls, which provide an almost endless variety in design and combination of details.

Here again we see that versatility which is an essential part in the training of efficient workmen.

The masons receive instruction on Tuesdays and Fridays, and of the twelve students, some are carving the intricate mouldings of a large two-light Gothic window with cusped-traceried heads and spandrels; some are fashioning a Gothic wall panel in Portland stone, while others are setting up a Renaissance doorway embellished with fluted trusses and hooded cornice, or are working on terminals and balusters.

The 'Banister Fletcher Medal' for the best piece of workmanship executed last session, was awarded to Henry George Bush, for a model of fan-vaulting with all its elaborate intricacy of ribs and panels.

The painters' class on Tuesdays and Fridays has been one of those most affected by war conditions, for two out of the four students have joined the Army.

The plasterers' class meets on Wednesday and Friday, and there are several beginners who are instructed in the manipulation of the various materials. More advanced students are engaged upon moulded cornices and panelled ceilings, such as were introduced into seventeenth-century England by the facile craftsmen of nations who are now our staunch Allies. Two students of this class have enlisted.

The plumbers are busy five nights a week, and this is a most popular class with twenty-five students. The work in hand comprises a stack of waste pipes and traps, with burnt seams for a chemical factory, hand-made leaden traps, and stacks of waste-water pipes complete with ventilating pipes and anti-syphonage traps, and various examples of lead work for flat roofs, gutters and bossings. Special attention has been given to lead-burning for munition works by the oxy-hydrogen gas jet, and a number of students have availed themselves of this opportunity for practice in a branch of plumbing for which the war has created an unusual demand.

I regret to announce that one student, Sergeant Shepherd, of the 13th London (Kensington) Regiment, has been killed in action in France.



The smiths' class on Tuesday, Wednesday and Thursday, has six students engaged upon various forgings, hand and foot motor levers, smiths' tools, besides an ornamental iron garden gate. The attendance is irregular because students are occupied on overtime war-work, and this indicates the importance of smiths' work.

The stone carvers' class on Wednesdays and Fridays provides instruction for ten students, who model their examples in clay previous to executing them in stone.

The life class is open on one evening only, and five students are modelling from life. I cannot urge too strongly the value of this class to advanced craftsmen, for whom it provides an opportunity for developing their capacity in the higher branches of decorative art. It is a gratifying testimony to the wisdom of our choice of instructor, that Mr. C. L. Hartwell has been elected an A.R.A.

The tylers and bricklayers' class has twelve students, variously employed upon a Gothic window, a pediment and cornice, a groined arch, an elliptical arch, a circular sundial, a balustrade, and other objects suitable for production in brick.

A former student of this class is now foreman on a very large building in London—a position obtained through his training here.

The wheelwrights' class meets on Tuesdays and Fridays, and the students are making parts of vans and wheels for which they prepare the drawings; thus training in design and execution goes hand in hand.

The wood carvers' class has eight students who are studying examples of different periods and doing practical work in the craft. I regret to announce that our instructor, Mr. S. Montrie, who has been with us for many years, has resigned owing to ill-health.

The wiremen's class on Mondays and Fridays has twelve students, most of whom are first-year men, who show a keen interest in the various methods of jointing wires, while the more advanced students are engaged upon expert electric wiring, switch control, and various patent systems.

In addition to our trade classes, the demonstrations to architectural students of University College have been continued as in past years, and a manual training class has now for the first time been started for these students—an innovation of the greatest importance to the architectural profession and one which also forms a link between our schools and the university.

I feel confident that a glance round the activities of the various workshops will convince anyone competent to give an opinion that these schools are productive of excellent results, in turning out craftsmen who will uphold the best traditions of English workmanship. Many former students have been able to enlist in the Royal Engineers, and constructive departments of the Royal Navy, and Royal Flying Corps, owing to the training received at your schools, while students in the plumbers' and smiths' shops are specially fitted to be of immediate service to their country in the manufacture of munitions.

It gives me great pleasure to report that Chief Petty Officer Dumsday, for so many years Curator at the schools, has done excellent service in naval gunnery training. He was serving on the 'Majestic' when she was torpedoed, and has been specially commended for bravery in connection with the landing at Gallipoli. Sapper Crosthwaite, also employed at the schools, has been in Flanders with the Royal Engineers since the war began.

Under the present abnormal conditions, it is a source of satisfaction that there should be 120 students not eligible for military service availing themselves of these opportunities for expert training.

To sum up my report on the classes as a whole, I think that the output for the session in the different departments makes a very creditable exhibition of handicraft, more especially as applied to the requirements of to-day.

On the general aspect of technical education, with

special reference to the Trades' Training Schools, Sir Thomas Graham Jackson, Bart., R.A., in distributing the prizes, spoke as follows:—

"These technical classes are a comparatively modern institution. They have taken the place of the old system of apprenticeship. For my part, I am sorry to say that apprenticeship is now dead, or nearly dead, which I think is very much to be regretted. The apprentice was in a very different position to students in a technical school; there is all the difference in the world between doing actual work and doing exercises in a technical school. What is done is in the nature of an exercise. It is done for the master, who corrects it if it is wrong and puts it right. But in actual work a new incentive is introduced, and the workman or apprentice knows that what he does must be right. It is not a matter that the master can correct; and if the worker makes a mistake it brings disgrace and disaster. Therefore, there is that sense of responsibility introduced which gives a fresh incentive to work which is most valuable, and which, of course, cannot be felt in the same way by the student in a technical class. In that way I think the technical classes are certainly at a disadvantage in comparison with the old system of apprenticeship, and all that there is for them to do is to supply the deficiency as well as they can.

But there is another and in my opinion a still more useful work being done by our technical schools; they are, in fact, the continuation classes for workmen who have been working in different trades during the day, who care in the evening to improve themselves and to carry on their work to a higher grade than what they have been engaged in during the day, and so to advance themselves in their craft and qualify themselves for better wages, and to acquire a new and increased interest in their work. That, I think, is of the very greatest importance.

Enjoyment of our work is a most important thing. No great work was ever done unless the workman had his heart in it, and unless he enjoyed what he was doing. There is a very pregnant sentence in the address given last year to this assembly by the Dean of St. Paul's:—

'The greatest joy in life, as I believe,' said Dean Inge, 'is the joy of making and producing something useful or beautiful, something which requires and draws out all the best qualities in man's nature, something which we can put our whole selves into. It does not much matter whether it is work with the brains or the hands; but I think that the ideal work is work which requires both brains and hands.'

That enjoyment your classes puts within the reach of the ordinary workman. He can bring his brains to work on a higher scale and a higher stage of his craft than that to which he has been devoting his time during the day. The bricklayer, for instance, who has spent the day in laying bricks in Old English bond or Flemish bond, can come here and learn to cut bricks or to make arches and niches, and pedestals and moulded work, which brings into play the higher qualities of taste and imagination. There is not much imagination, perhaps, required to lay bricks in Old English bond, but when the workman comes to moulded work he feels that he is beginning to embark upon quite a different grade of his art. In fact, he becomes an artist, and that gives him an additional relish and pleasure in his work which nothing else could do. In the same way the carpenters and joiners are set to work in your schools on different problems of construction, and the joinery such as I saw the other night introduces them to a higher sphere of work, and no doubt gives them increased interest and happiness in their work. A plumber who has learned, perhaps, to wipe a joint comes here and learns to model in clay and cast in lead. I saw two very nice cast lead cisterns which had been made last year, with ornaments upon them, and I am quite sure that the man who made them enjoyed his work thoroughly. The plasterer who has been employed all day in rendering floating and setting walls comes to your classes, and he is able to

model mouldings and ceilings, and cast them and mould the ornaments. There you have again a man qualifying for a different grade in his craft. It is the same with the masons, and all the other trades for which you have classes in your technical schools. Every step thus taken brings with it its own pleasures, and I am quite sure that the workmen who come to your schools leave at the end of their course very different persons from what they were when they entered.

There is, I think, one danger in our technical schools that should be guarded against. There is always a danger of the student losing his originality. There is a tendency to put all the students through the mill in the same way, and to take no cognisance of the separate and individual qualities of the student. There is a temptation, when a master sees a student doing something in a different way to what he would do it himself to resist and put the student in the way that he himself would have done. That, I think, is quite wrong. Of course, if the student is going wrong on a hopeless line, it is the business of the master to put him straight; but he should welcome every mark of individuality and originality in the student. It is not his business to impress himself upon the student, but he should bring out those qualities of originality which he possesses, and encourage him, so as to make him do his best according to the light that is in him, and not to extinguish it by the regular course of a cut and dried curriculum."

#### NOTES AND COMMENTS.

ALREADY definite preparations are being made for the rehabilitation of the destroyed areas in Belgium, and members of the British building trade who wish to share in the work must bestir themselves. The authorities of Ypres, it is reported, have had plans prepared for reconstructing the town on modern lines. For Dixmude a meeting of the municipality, assembled at Paris, has decided on more conservative methods to restore their town on its original lines as far as possible, with due regard to modern progress, hygiene, and comfort. According to the "Aftontidningen" a Stockholm firm of builders, with a branch office at Liège, has made contracts for extensive rebuilding works in that town, and is making purchases of great quantities of limestone for that purpose in Sweden.

Some people are still obsessed with the idea that taxation of vacant sites will assist the housing problem, whereas the true fact is that ninety-nine landholders out of a hundred, with "eligible" building land, ripe for development, would be only too pleased to sell or let at once at market rates. At a conference of Irish Municipal Associations held at Belfast, for example, Mr. Field, M.P., in a paper entitled "Housing Homily," said: The enormous cost of acquiring sites was a scandal, and the present methods called urgently for reform, so as to simplify, cheapen, and expedite the purchase procedure. If a reasonable tax was put on vacant sites it would probably enable a deal at a fair price with the landholder, who either would not, or could not, perhaps, afford to build. Then possibly Corporations or Councils might acquire the land, and let it at low rents to builders or others, who should be bound to build dwellings suitable to the requirement of the workers, and the rates should be lowered, or not demanded for a certain period.

A far saner view is that expressed by Mr. E. Russell Taylor, the president of the Liverpool Property Owners' Association, who, in an interview with a representative of the "Liverpool Courier," said, "My idea is the organisation of the country into areas, one for the north of England for instance. If an organisation for that area were in existence I am confident that there would be no necessity for talking about £20,000,000, but that with an advance of £50,000 all the houses required in that area could be provided by private enterprise if the disabilities

under which the private builder labours nowadays were removed. What is required is an amendment to those Acts which have been so prejudicial to the building industry, and have upset the confidence of the investor. Part 1 of the Finance Act (1909-10) should go. There must be a removal of the restrictions on building materials, and legislation, if necessary, introduced to prevent the wholesale withdrawal of money as security on property which would mean the downfall of hundreds of thousands of investors in the land. Owing to the shortage of houses, the recent non-building, the gradual increase in population, and the extraordinary increase in the number of marriages, all other agencies should help, but private enterprise will have to be relied upon to do the giant's share towards remedying the present grave shortage of houses."

The arguments against the Finance Act, says the "Liverpool Courier," in so far as it affected the housing of the working classes, were never more convincingly put than in the shape in which they were presented by Mr. A. W. Shelton, vice-president of the National Federation of Property Owners and Ratepayers, to the President of the Local Government Board. He stated that he had been at great pains to ascertain the facts as regarded house-building during the last ten years in all the important towns and cities in the United Kingdom, and by permission he handed in a list of seventy towns and cities concerned. Except the Metropolitan area as a whole for which figures were unfortunately not available, every town or city with a population of 100,000 or more was included. The total population of the areas concerned exceeded 13,000,000, or nearly 30 per cent. of the entire population of the United Kingdom. The results shown were strikingly significant. In the five years preceding the passing of the legislation referred to, there were actually built in the seventy localities in question 169,896 houses. In the five years 1911-15 inclusive (after the passing of the legislation) the number of houses built in the same areas was only 89,654, a falling off of 81,242. In order to meet the normal growth of the population roundly 83,000 new houses per annum were required, and it was estimated that 31,000 additional new houses were needed yearly to replace worn-out and unfit dwellings—a total annual requirement of 114,000. The estimated number of new houses required on such basis to meet every possible need in these seventy towns and cities taken as a whole—there were doubtless exceptions to the general rule—was 33,176 per annum. Seeing, however, that the number actually built for the five years ending 1910 averaged 33,970, the figures showed that there had actually been an excess of supply over all needs of over 4,000 houses during that period. On the assumption that cottage building in the United Kingdom had generally followed the lines of the principal towns it would be seen that the last five years had given the whole country 280,000 fewer houses than in the preceding five years. This would seem to justify the statement—assuming a rural shortage of from 100,000 to 120,000—that there is a deficiency of at least 400,000 cottages, and possibly 450,000 to 470,000. In any case, the shortage was increasing at the rate of probably 200 per day, or, say, 75,000 per annum.

Proceeding, Mr. Shelton said: Your department in a recently issued report very definitely state (1) that private enterprise has always been and is expected to continue to be the main source of the provision of houses for the working classes, and (2) that building by local authorities is not required except where private enterprise has failed to provide such houses or houses for a certain class of workmen. The report also indicates that of 5,692,096 dwelling-houses of the annual value of £20 (i.e. less than 7s. 9d. per week) less than 20,000 had been erected by local authorities under Part 1 of the Act of 1890, and I am able to state from actual figures supplied by Mr. E. G. Culpin that the total number of houses erected up to quite recently by public utility societies is 7,747. The position is, therefore, that of all existing houses of what

may be called the working class character 97 per cent. have been provided by private enterprise and only 3 per cent. by municipalities, public utility societies, &c.

These are strikingly significant figures and indicate the colossal, if not to say, impossible task of providing healthy houses for the people if the main cause which has led to the practical stoppage of house production by the private builder is not removed. The passing on April 29, 1910, of the Finance Act was followed by an immediate and serious fall in house production which unfortunately has increased in volume in every succeeding year. I know only too well and anticipate everything that can be urged in regard to the several other causes which by common consent have tended to enormously increase the difficulties of cottage building. It is unnecessary to refer to these, but I desire to state my deep conviction, a conviction which is shared by every other individual with direct personal and practical knowledge of the subject throughout the length and breadth of the land, that the original cause, the principal cause, and a continuing cause of the greater part of the housing shortage is directly attributable to the legislation referred to, and that until there is adequate amendment (or repeal) of Part I of the Act there can be and will be no adequate improvement. This cause is purely artificial, and one which could quickly be remedied with the minimum of trouble and inconvenience to the Government. Already Parliament is satisfied that very grave results have arisen from the working of the Act, and recognising this and in fulfilment of pledges to that effect, the Government introduced clauses in the Revenue Bills of 1913 and 1914 which, however, dealt with only a single phase of the case. Knowing and appreciating your deep personal interest in this, the greatest of all social problems, I earnestly beg of you to use your great personal influence with your colleagues in the endeavour to speedily secure adequate amendment of the legislation to which I have referred, and so make "the crooked straight and the rough places plain."

The now generally recognised necessity for an improved relationship between employers and employed was the subject of an address at a recent meeting of the Council of the Birmingham Chamber of Commerce by Mr. H. W. Sambridge, the president, who summarised and supported the most important suggestions already made as:—

(1) That manual labour in the future should be admitted to some share on the councils of manufacturers (suggested, he thought, by the Lord Mayor).

(2) That there should be greater frankness between employers and employed, and that they should meet and discuss industrial matters together or through duly accredited representatives.

(3) That the fundamental facts and principles of industrial and economic life should be known by both.

(4) That in each industry permanent boards or committees be set up to consider all matters of common interest. In some industries this need, said the president, was met by the existence of conciliation schemes, under which matters were referred to joint committees, and this had been found to work very effectively. In order that this might be extended it was essential that both employers and employed should be strongly organised, and every employer and every worker should be bound by decisions arrived at.

(5) Profit-sharing and company partnership were suggested in some quarters as a remedy for industrial unrest, but in his opinion it was almost impossible to devise any all-round scheme satisfactory to both parties.

The first report of the Commission appointed to adjudicate upon claims for compensation for loss arising out of measures taken under the Defence of the Realm Regulations, sitting under the chairmanship of Mr. H. E. Duke, has been issued in the form of a White Paper.

The Commission announce that to the end of August this year they held 130 sittings in London, twelve in Edinburgh and one in Dublin, and in respect of 1,094 applications made awards amounting in the aggregate to £276,965, against claims for approximately £852,779, and periodical payments at the rate of £191,857 a year, against claims for approximately £355,049 a year.

Acting strictly upon the principle embodied in the terms of their appointment, to take into account only cases of direct and substantial loss or damage, the Commission declined to take into the purview of their consideration applications which were otherwise provided for by statutory enactment, or agreement to which the Crown was a party, or those arising solely and simply from the state of war. Nor were awards of an *ex gratia* character made, or applications considered, where merely business connections with other firms were adversely affected by Crown interference. Also excluded from award were instances of military occupation of undeveloped land, but in this connection where there was the possibility of change of circumstances making continued occupation a cause of loss, such cases were reserved for further consideration.

The difficulty of giving effect to so novel a principle in matters of compensation was instanced in the case of interference with agricultural land. Where crops were in being and destroyed or damaged their value had been awarded, but in the case of anticipated yields the view was taken that the property interfered with was the land and the loss of the tenant had been assessed upon the basis of its occupation value. In cases of surface damage by defensive works, the sum properly to be awarded was founded upon the cost of reinstatement.

Except a small minority, applicants had cheerfully acquiesced in the view that payment for actual loss caused was a reasonable and sufficient discharge of claims upon the State, and that to forego commercial profit possible upon like transactions in time of peace was a reasonable and patriotic sacrifice.

The Commissioners refer to the increasing magnitude of the operations of His Majesty's Forces, and the consequent arising of new classes of application, and dwell upon the importance of the assessment of compensation upon the footing of actual loss in relation to operations constantly in progress, such as the encampment and temporary quartering of forces. Comparison of the scale of payments in the autumn and winter of 1915, as the result of bargains for indispensable accommodation in a time of public emergency, and of more recent payments on the footing of actual loss, will, the Commissioners think, show that in time of a great war the difference of cost involved in the two systems may be a matter of grave public concern.

In view of the fact that very large sums of public money were being expended by the military authorities upon works of more or less permanent character upon lands in their occupation, the Commissioners invited the proper authorities to confer with them as to the expediency of the State permanently acquiring the entire interests in these lands with the object of conserving as much as possible of the vast outlay which would eventually be made upon them. A measure had been presented to Parliament for giving effect to this aim.

A striking example of the influence of the war on important national industries is afforded by proceedings before the Carnarvonshire Appeal Tribunal. The Penmaenmawr and Welsh Granite Company have suffered the loss of 1,085 men from their quarry-workers, and now employ 594 men only, of whom 165 are of military age. The Tribunal has decided that of the 123 men who are eligible, 30 shall go in one month, 30 in two months, and 30 in six months, although half of the present output of the company is in respect of contracts for Government work. And yet there are people who urge the granting of facilities for the importation of foreign granite at the present time.



Sir George Askwith, Chief Industrial Commissioner of the Board of Trade, recently in Edinburgh presided over a meeting held for the purpose of considering further procedure in connection with the promulgation of a national building code for Scotland. The differences among architects and surveyors and members of the building trades, including questions of re-measurement and other technical points, are of long standing. For over eighteen months there has been adopted and in operation a mode of measurement for joiners, and the result of the meeting was that the terms of a code for masons were drawn up and subject to the approval of certain documents will be forwarded by Sir George Askwith to the parties for their adoption. Also arrangements were made for dealing similarly with the other building trades.

## ILLUSTRATIONS.

### MALLORY COURT, TACHBROOK, NEAR LEAMINGTON. PERITON MEAD, NEAR MINEHEAD.

THESE houses, by Mr. Morley Horder, formed the subjects of the two drawings exhibited at the Royal Academy this year, which we reproduce this week.

### REREDOS, ILMINSTER CHURCH, SOMERSET.

THIS reredos was recently executed in Beer stone, from the design of Mr. Frederick Bligh Bond, F.R.I.B.A., by Herbert Read, of St. Sidwell's, Exeter. The figures in the small niches include Abraham, Moses, King David, and Elijah in the top row, and beneath are St. John Baptist, St. Peter, St. Paul, and St. John Evangelist. The reredos, in general outline, follows faithfully certain indications which remained in the masonry of the east wall of Ilminster Church, and a little of the ancient work still remains in the panelling on the walls at the sides of the reredos, though the two statuary groups which now occupy the recesses on north and south were added with the rest of the new work. They represent the Annunciation and the Nativity.

The reredos is the gift of Colonel A. V. H. Vaughan-Lee, of Ilminster, in memory of his father and mother.

### THE LATE MR. R. PHENE SPIERS.

WE regret to have to record the death after a long illness of Mr. R. Phené Spiers, of whom the following excellent obituary notice appeared in the "Morning Post":—

Mr. Richard Phené Spiers, the well-known architect, has died at his residence in Bernard Street, Russell Square, at the age of seventy-eight years. Educated in the engineering department of King's College, London, he worked as a student of architecture for three years from 1858 in the Atelier Questel of the Ecole des Beaux-Arts, at Paris, and in the Royal Academy Schools, where he gained the gold medal and travelling scholarship. He was also Soane medallist and travelling student of the Royal Institute of British Architects, and first in the Class of Distinction of the Architectural Association, of which, later, he became President, as well as being for many years a most active member of the Council of the Institute. He entered the office of Sir Digby Wyatt, and assisted him in his work at the India Office; and, later, was employed by William Burges on the drawings for the Law Courts competition. As a practising architect Mr. Spiers was not responsible for many buildings of the first importance, although one may name, as examples of this phase of his work, Lord Monkswell's house on the Chelsea Embankment, Locke Park, Barnsley, several County Council schools, and painters' studios.

His chief energies were applied to the historical and educational sides of his profession. For thirty-five years he was Master of Architecture of the Royal Academy, and it is not too much to say that nearly every architect of importance of the present day was at one time or another personally indebted to Mr. Spiers. On his

retirement from this post, in 1905, this fact was the cause of a remarkable demonstration in appreciation of his services. A testimonial was presented to him, signed by more than 300 of his old pupils and others who had been professionally associated with him in this country; as well as representatives from India, the Colonies, the United States, and Japan. On this occasion the Société Centrale des Architectes Français and the Atelier Blouet-Gilbert-Questel-Pascal of Paris made a separate presentation; and a medallion by Professor Lanteri was struck to commemorate the event. One interesting and valuable outcome of this movement was the formation of the Phené Spiers Collection of Drawings of Architecture in the Victoria and Albert Museum. As the result of the testimonial a small surplus fund was placed at the disposition of Mr. Spiers, and was devoted by him to the purpose of acquiring architectural drawings for the national collections. Mr. R. W. Schultz, F.R.I.B.A., and Professor W. R. Lethaby, F.R.I.B.A., joined the founder as an executive committee; and by its unwearied exertions several thousand valuable measured drawings of important buildings or designs and working drawings by distinguished architects can now be referred to at South Kensington by students. Most of these, it should be said, were gifts prompted by the feelings of the donors towards one who had done so much for the history and study of architecture.

Mr. Spiers was one of the most accomplished architectural draughtsmen of his time, and a highly skilled painter in water-colours of this class of subject. His literary work was extensive and valuable. He edited new editions of Pugin's "Normandy" and Fergusson's "History of Architecture," and wrote copiously on Greek, Roman, and Sassanian architecture. On domed churches he was a high authority, and personally investigated and described almost all the leading types, from those of France to the mosques of Mohammedan countries. He was also keenly interested in the study of Japanese art. He was a Fellow of the Society of Antiquaries and of the Royal Institute of British Architects; Associate and Fellow of King's College, London; Hon. and Corresponding Member of the Société Centrale des Architectes, Paris; the Sociedad de los Arquitectos, Madrid; Hon. Associate of the American Institute of Architects; and a Member of the Council of the Japan Society. But he will for long be remembered chiefly for the absolute unselfishness and untiring industry with which he placed his services at the disposal of anyone needing them in connection with the work he had at heart, and for the justice and good temper which marked his handling of all questions of controversy in which he took part.

WE offer our deep sympathy to Sir Aston and Lady Webb on the death of their youngest son, Second-Lieutenant Philip Edward Webb, who was killed in action on September 25. He was thirty years of age, and obtained his commission in the Royal Engineers in May of this year, after serving in the London University O.T.C. Second-Lieutenant Philip Webb was elected a member of the Architectural Association in 1905, and became a student and member of the R.I.B.A. in 1911 and 1912 respectively.

SECOND-LIEUTENANT FRANCIS GRISSELL, of the Coldstream Guards, was killed in action on the Somme recently. He was registered as a student of the R.I.B.A. in 1907, and became an Associate in 1913. He left a professional engagement in the East shortly after the outbreak of war and joined the Artists' Rifles, quickly obtaining his commission.

PRIVATE BALFOUR ABERCROMBIE, a Licentiate of the R.I.B.A. since 1910, has died of wounds in France. After serving his articles with Mr. James Miller, A.R.S.A., F.R.I.B.A., he set up in practice in Glasgow in 1906. Private Abercrombie joined the Colours last year.

DURING the cleaning of Orsett Church, Essex, an ancient painting was discovered on the north wall. Sir William St. John Hope, formerly of the Society of Antiquaries, has been consulted, and has given advice as to preserving it. The cement which covered the Norman entrance has been removed, and the rector states that it may now be classed among the finest examples of Norman doorways in the country.

## TWENTY-FIVE YEARS OF AMERICAN ARCHITECTURE.\*

By A. D. F. HAMLIN.

(Concluded from last week.)

IN Mr. Birkmire's "Skeleton Construction in Buildings," published in 1892 or 1893 (Second Edition, 1894), the early triumphs of the new system are recorded: the W. C. T. U. Building, the Owings Building, the Masonic Temple, the Schiller Building and the Auditorium in Chicago; the Havemeyer, Home Life, Jackson, and World buildings, and the New Netherlands and Waldorf hotels in New York. Bruce Price's scheme for a thirty-four storey tower for the New York "Sun" had appeared and been laughed at; twenty years later the forty-six storey Metropolitan tower embodied his idea on a still loftier scale. In 1892 in New York the talk was of the new Madison Square Garden, "the most beautiful building in America"; of the World building, the loftiest of inhabited edifices; a little later, of the Park Row building, over 300 feet high; of the competition for the proposed Episcopal cathedral, of Grant's Tomb on the Riverside Drive. Boston had just begun the erection of her new Public Library, and Washington that of the Congressional Library, two edifices destined to exert a powerful influence on our public architecture in the direction of interior decorative painting of the highest character. Philadelphia had but just begun to feel the stirrings of a new architectural impulse, led by a group of young architects who are now the veterans of the profession in that city, with a long list of excellent buildings to their credit. The Pacific Coast had not yet begun the development of that interesting domestic architecture which distinguishes it to-day. The Ponce de Leon and Arizoa at St. Augustine had but recently made the reputation of that young architects—Carrère and Hastings; there was at that time hardly another recent building of artistic importance in the South. Turn the pages of the "Record" in its first year; look through the columns of the "American Architect" and "Architecture and Building" for 1891-2-3, and you will realise how meagre in those days was the list of American buildings of really successful design, or of any lasting importance. True, as a whole, our domestic architecture was the best in the world—how inferior even the best European was to that which is being built in the same cities to-day. And how much more numerous were the failures—the conspicuous failures and blunders; vide the quarterly "Architectural Alterations" published in the "Record," if you doubt it!

A fair or even a fairly representative list of the most important and worthy works of our architects of the past twenty-five years would be too long for the limits of this article. But a few may be mentioned by way of example. There have been seven important exhibitions of national or international scope since the Columbian at Chicago in 1893; the "Cotton States" Exhibition at New Orleans; the "Trans-Mississippi" at Omaha in 1898; the "Pan-American" at Buffalo in 1901; the "Louisiana Purchase" at St. Louis in 1904; the Jamestown in 1906; and the two in California, at San Francisco, and San Diego, in 1915. Each of these, with the possible exception of those at New Orleans and Jamestown, was of first-rate architectural importance. They were all scenic displays of "staff" architecture, decorations rather than durable buildings, but they all stimulated the imagination and developed the decorative resource of our architects, and for the first time in our history exerted a reflex influence on European exhibition architecture. The Boston Public Library was completed in 1895; the Congressional at Washington in 1897; the Public Library of New York in 1912. With the accession of Wm. Martin Aiken to the office of Supervising Architect of the Treasury in 1893 there began a remarkable reform in our Federal architecture, which continued under his successor, J. Knox Taylor, and was further stimulated by the passing of the Tarsney Act, unhappily

repealed in 1914. The Custom Houses, Court Houses, and Post Offices of this régime, at New York, Indianapolis, San Francisco, Cleveland, and other cities, the Senate and House offices at Washington, and a host of lesser Federal buildings, have lifted our national official architecture from pretentious inferiority to a level of high artistic merit. The great railway terminals at Washington and New York and the North-Western at Chicago, and others of less magnitude at Pittsburgh, Baltimore, and other cities, have redeemed us from the former disgrace of the old-time shabby and disreputable makeshifts. University and collegiate groups have been created that are the envy of foreign professors and scholars: Palo Alto and Berkeley in California, the University of Pennsylvania, Chicago, Columbia, Johns Hopkins, Princeton, Washington at St. Louis, Bryn Mawr, Vassar and Sweetbriar Colleges, the College of the City of New York, and others, represent a branch of architecture which hardly had any existence before 1891. At the same time a new architecture of public school buildings has been developed, based on scientific principles and the logical expression of plan and structure; witness the modern schools of New York, Boston, Chicago, St. Louis, and a dozen other cities. Certain types of buildings have been subjected to a process of standardisation, within well defined limits, as the result of prolonged and systematic study of their requirements; for instance, public libraries, hospitals, Y.M.C.A. buildings, office buildings, public schools. That is to say, a general consensus has been reached as to certain of their requirements and the best arrangements, proportions, and dimensions of their fundamental elements, so that all architects have profited by the combined wisdom of those who have worked out these standards. The librarians were the first to attempt such a formulation of requirements, and American library architecture now leads the world, both in the larger buildings like those already mentioned, and such other important examples as the libraries of Milwaukee, Detroit, Newark, Springfield, Providence, and Manchester (N.H.), and in the smaller libraries and branch libraries. In any American city the library is likely to be one of the handsomest buildings in town, and a creditable work intrinsically; and in any college or university the same is often true, as at Columbia (the Low Library), Harvard (the Widener), Vassar (Thompson Memorial), and many others.

Our skyscraper architecture hardly requires the mention or comment of my pen. It is omnipresent and insistent, the most conspicuous, revolutionary and American architectural product of the last twenty-five years, from Jenney and Mundie's Home Life Building in Chicago and Bradford Gilbert's Tower Building addition in New York to the 750-foot Woolworth and the vast Equitable in New York, and Boston's much-belauded Custom House. It has been more "cussed and discussed" than any other modern type. It has changed the skyline of New York and of every large American city from Seattle to Bangor, from Los Angeles to Galveston. It has produced a new architectural style, irrespective of that of its varied decorative trimmings, and it speaks so loud for itself as to make further words on this page unnecessary.

The past twenty-five years have given us the fine State capitols of Rhode Island, Minnesota, and Wisconsin among others, and also, alas! the scandal of Harrisburgh; the great Municipal Building of New York; the choir and chapels and attendant buildings of the Cathedral of St. John the Divine; a large number of fine churches and the beginnings of several cathedrals; the design for the greatest court house in the world, at New York—but space forbids continuing the list.

This remarkable development exhibits an almost sudden substitution of Renaissance forms for the previously popular Romanesque, in the years following the Columbian Exhibition, and a rapid advance in the planning of buildings as well as in the design of their decorative details. During the last fifteen years there has been witnessed the growth of a very interesting phase

\* From the "Architectural Record."

of eclecticism in style, by which certain classes of buildings are habitually treated in various phases of neo-classic design; others in free versions of the Gothic. The neo-classic styles in use vary from the picturesque Francis I. Renaissance of the Biltmore château to the severe Greco-Roman of the Senate offices at Washington, and the Pennsylvania Terminal at New York; the Gothic from the very free treatment of the New York City College or the Woolworth Building to the ecclesiastic Gothic of St. Thomas' at New York and the scholastic Gothic of the Princeton Graduate School. Even the Greek Doric appears in porticoes and façades of banks, libraries, and museums. But this use of historic styles is, after all, for the most part a matter of dress and apparel of architecture. Underneath the Gothic, Greek, and Renaissance details and through them all, one may discern the real American architecture—American in planning, construction, and material; in conception and in spirit American, and nothing else.

## V.

This paper is already too long to permit of doing justice to five other features of the architectural history of the period, which deserve several pages apiece. These are: (a) the various phases of the movement for civic improvement, in city planning, garden cities, civic centres, and municipal art generally; (b) the great advances in mechanical equipment of buildings, with the attendant increase in the complexities of architectural design and practice; (c) the progress of domestic architecture, and especially the Colonial revival in rural and suburban architecture; (d) the emergence of an American school of landscape design; and (e) the extraordinary increase in the variety and improvement in the quality of building materials. The temptation is strong to list the most important of the events in the nation-wide campaigns for better city plans, for improved tenement housing, for the artistic rebuilding of wrecked and burned cities, for reclaiming waterfronts, for grouping public buildings; but we must refrain. It is hard to have to omit all account of the new uses of concrete, hollow-tile, Guastavino vaulting, and new kinds and forms of brick, tile, glass, and what not; of the development of the "bungalow" and "mission" types, and the influence of English rural architecture, and so on, and so on. The reader's patience and the writer's time allowance and paper have limits.

## VI.

A page or two on architectural literature must close this inadequate attempt to sketch the architectural achievements of the past twenty-five years.

In 1891 there were published in the United States, disregarding minor and ephemeral periodicals, two architectural journals: the weekly "American Architect and Building News" in Boston, and the monthly "Architecture and Building" in New York. In that year the "Architectural Record" first made its appearance, as a quarterly, hailed from the outset as a much-needed addition to our periodical literature, and marked by a seriousness of artistic and literary purpose which has ever since characterised it. Its change in 1903 to monthly issues was a natural result of its high quality, and it has constantly maintained that quality ever since. Meanwhile the "Technology Review" of Boston has entered the field, and that has developed into the excellent "Architectural Review," filling a field midway between that of the "Record" and the other periodicals mentioned. The "Inland Architect" of Chicago long served the interests of the Middle West; the "Western Architect" came later, and in 1903 first appeared "Architecture," another New York monthly, making a speciality of photographic illustrations. Occupying a field of its own, and standing at a very high level of scholarly, literary, and artistic excellence, is the "Journal" of the American Institute of Architects, now in its third year; the latest comer in the field of American periodical literature on architecture. Other additional periodicals there is not now space to mention; they are

many, and there are still others which, though not primarily architectural, devote a part of their space to architecture or issue special architectural numbers. All this has served to diffuse an interest in architecture among the public, and to provide the architect with information, instruction, and suggestion. This periodical literature, much of it excellent, some of it commonplace, some distinctly inferior, is both a cause and a result of the increased general interest in architecture.

Quite as significant is the increase in books on architecture, of which the output has been enormous of late years. These fall into three classes: technical-scientific books, among which the successive editions of Kidder's "Pocket-book" have been conspicuous; popular handbooks on house-design, stable-design, bungalows, house-furnishing, &c.; and books of scholarship, history, and criticism, among which Sturgis's "Dictionary," and "European Architecture," Cummings' "History of Architecture in Italy," Moore's "The Character of Renaissance Architecture" and "The Mediaeval Church Architecture of England," Porter's "Mediaeval Architecture" and "Lombard and Gothic Vaults," the Sturgis-Frothingham "History of Architecture," Wallis' "How to Know Architecture," my "History of Architecture," Ware's "American Vignola," Frothingham's "Christian Architecture of Rome," Adam's "Mont Saint Michel and Chartres," and several books by R. A. Cram may be mentioned among many others, as examples of the wide reach, variety, and quality of American scholarship, research, and literary skill in this field. They witness to the new position which architecture has reached in the public estimation since 1891. Such books could perhaps have been written before that date; surely but a fraction of them could have been published or could have had any wide sale. Professor Moore's epoch-making "Development of Gothic Architecture" appeared, it is true, in 1889, but that and W. P. P. Longfellow's "The Arch and Column" were almost the only serious books on architecture by American authors previous to 1891. It augurs hopefully for the future progress of our art that its literature is now firmly established in public favour, and that it has been of such generally high quality.

This brief and hurried survey of a vast subject leaves unsaid much that the writer would have gladly discussed had time and space permitted. The question of style has been left almost untouched. The monuments must speak for themselves; the subject is too big for mere passing mention. The writer hopes that even so inadequate a sketch may inspire its readers with a new respect for the work of our American architects, the veterans and the young men alike; and with a new hope and confidence in the future. Looking back to the architecture of 1865-91, and noting the progress made since then, we have good reason to hope that 1941 will see, throughout our great Republic, an architecture far nobler, purer, more serious, and more beautiful than that of to-day, offering to the whole world models of good taste and sound construction, and making our cities and villages fairer and happier places to live in than they are in this year of grace 1916.

### HISTORIC BUILDINGS IN THE WESTERN WAR ZONE: THEIR BEAUTY AND THEIR RUIN.\*

By the Rev. G. HERBERT WEST, D.D., A.R.I.B.A.,  
Author of "Gothic Architecture in England and France."

(Continued from last week.)

THE arch mouldings indeed are even adapted to the pier, instead of the pier to the arch mouldings. These mouldings also are more deeply cut than in France and enriched, so as to be in keeping by their strong contrasts with the black and white of the columns—very beautiful and well suited to our grey climate. But when the use

\* The second of three lectures delivered before the Royal Society of Arts. For a full treatment of the subject see the author's "Gothic Architecture in England and France." (London: Bell & Sons. 1911. 6s.)



of marble in the piers ceased, the mouldings became shallower arrangements in grey, frequently worked on the chamfer, in striking contrast to those of late French work, which are narrow deep hollows and sharp prismatic edges to catch the light, so as to distinguish the different ribs as they run down from the vault to the ground. Again, in contrast with the French, the wall which disappears with them till the incessant vertical lines give a sense of irritating restlessness to their later styles, is in English work everywhere visible, and its restful suggestion of strength and quiet repose most grateful, while the long-drawn-out perspectives of arcades and aisles give the special character to the whole which in France is found in the soaring elevation of each separate bay.

But the real glory of our English Gothic is to be found in its latest form. I said how in French vaults the triangles between the ribs are covered in by panels made of rows of arches of small stones thrown from one rib to the other. But as the diagonal ribs are of course much longer than the arches which form the sides of the square or oblong of the vault, the stones of these little arches must be much larger at the end resting on the diagonal than at the other, and if a straight joint is to be got along the ridge this difference must be distributed over all the little arches by carefully shaping each stone for its place in laying it. Only skilled workmen could do this properly. To the practical, rule-of-thumb Englishman it seemed much simpler to cover in his triangles with rows of stones all of the same size like planks. But the result of this was a joggle or dovetail along the ridge instead of the straight joint of the French vault. This could not support itself, but needed a rib for the ends of the stones to rest on. Also this system gave a flat surface instead of an arched one between the ribs, which if of any size needed another rib or tierceron to support it in the middle, or rather to give an extra bearing so that the rows of stones could be shorter. The effect was thought so pleasing that more intermediate ribs were added until we reach such a beautiful form as Exeter.

But a difficulty arose with these "tiercerons." They varied greatly in length, according to their position, and were all much shorter than the diagonals. Either, therefore, the ridge could not be kept level, or the curves of these ribs must be changed, "fudged," half-way. At the point where the curve changed a short cross-piece, or lierne, was put, and then as it was difficult to get a tidy-looking mitre of the mouldings, a little carved boss was placed at the intersection as at Canterbury, Lincoln and Winchester, and soon star patterns and all sorts of fanciful arrangements of the ribs were indulged in as at Tewkesbury, and the practical result became a ribbed barrel vault with intersections as in Winchester nave and Gloucester choir.

Soon the number of similar ribs springing from one capital gave the idea of making them into a perfect cone, called fan vaulting, a very silly name. If the curve of the ribs is a single simple one, as at Gloucester, a flat ceiling must come between the cones, or if a regular vault with a ridge is wanted, the curve must be altered to provide for the different lengths of the ribs, and so the four-centred arch arose, which is characteristic of our later styles, and which naturally, as had happened previously with the pointed arch, was taken from being a mere necessity of construction to become the chief decorative feature of the building.

Having got this cone of ribs it was ingenious to bring it out from the wall and spring it from a pendant as centre, as at Oxford Cathedral, or even to bring it out so far as to complete the cone and let it meet another half cone springing from the wall as in the Divinity School, Oxford, or that final masterpiece, Henry VII.'s Chapel, so easy to criticise, so impossible not to admire.

It is curious that in these latest vaults the true use of the ribs has entirely disappeared and the ribs and panels are all cut out of large blocks of stone and we have got back to the Roman barrel vault with its continuous thrust, a strange result to arrive at from merely altering the system of covering in the triangles between the ribs. It is rendered all the more striking by the fact that the French, who kept to their original system, never arrived at these rich vaults. Many of their later vaults, as at Gisors and Abbeville, have little pendant bosses, and occasionally, as at St. Ricquier, a lierne vault may be found copied from the English ones, but anything elaborate like Rue is a mere piece of fanciful decoration.

Having now traced out the causes, historical, racial and constructional, which influenced the development of Gothic art in England and France, let us look again at the results at which the two nations arrived in their great cathedrals. There could hardly be a greater contrast than that between the two. In the exterior of the French cathedral—which is generally obviously the result of one great effort, begun with vast enthusiasm but never finished as intended, if at all—the walls have "formed fours" and are standing in slices at right angles to the building which they support but do not enclose, towering high above it, and seeming to push and thrust with all their power to keep up its enormous height. It is very wonderful and very beautiful, but leaves a sense of constant effort to overcome difficulties after all only partially vanquished. But till the other day, one cathedral—Reims—did show us almost perfectly the ideal which was aimed at and with very little of that sense of effort, standing now, alas! merely a shell, wrecked by the Huns—and the French rightly propose to leave it as it is, a monument to their enemy's eternal infamy.

How beautiful is the peace of the long low English cathedral, with its insignificant buttresses and unambitious lines, with no traceried canopies or wealth of sculpture, and, except for the upward pointing of its central spire, seeming content to remain quietly on earth; telling generally in its unequal parts and varied styles—not of a mighty impulse which faltered all too soon, of a lofty enthusiasm which died down to mere mechanical dexterity, but of successive generations of commonplace yet earnest men, each bringing its little stone and saying—

Add this to the rest.

Take it and try its worth, Here dies another day.

The French cathedral was the most perfect work of art imaginable, more complete even than the Greek temple, for not only was it a perfect combination of all the arts, architecture, painting, sculpture more inseparable and more perfectly co-ordinated, but it was the expression of a higher, fuller ideal as coming later in the history of the human race and the work of a people as idealistic, as highly strung as the Greek. This artistic expression is found most in that part of the cathedral which was the least fully worked out, the great west front. There is not one of them which is not open to criticism as to proportion, adaptation to its purpose, disposition of lines and parts—yet there is not one which is not beautiful and inspiring.

The original type is in that strange rugged building, the cathedral of Laon, now within the German lines, perched on its precipitous rock, fit emblem of the turbulent race who built it. The towers and triple porch, the great rose window and arcaded gallery reaching across are features which become invariable. But the point about Laon which impressed itself on the artists of that time, as we know from the sketches of Willars de Honne-court, and through them on all subsequent buildings, and especially on Reims, was the towers. The way in which the diagonal pinnacles are carried on the angle buttresses with a rich cornice and just the right amount of horizontal lines, forms, perhaps, the best transition in existence from the towers to the spires which were to have crowned them.

There is a beautiful legend about the bold and original

figures of oxen and peasants which look over the balustrades of these towers. The peasants who, as at Chartres, were dragging the stones up the hill, found the load beyond their strength, so the oxen in the fields around came of their own accord to be harnessed to the carts. In the homage given by these striking figures to the patience and strength of the docile creatures who thus helped to build the house of God, is a touching expression of gratitude and justice.

The break in the gallery is a defect avoided at Notre Dame. The horizontal lines there are, perhaps, too strong, and it is too much cut up into squares, but what restfulness in the wall spaces, what noble proportion and sense of scale! The Arc de l'Etoile is exactly the same size and looks about half. Put Wells by the side of it; the sculpture there is glorious, but is independent of the poor and monotonous design, with its mouseholes for doors and columns like scaffold poles all over the front. Or set Amiens by the side of Lichfield with its shopful of statues put away on brackets, or even Peterborough by the side of Reims, far and away the most glorious of them all. Reims has defects and serious ones; the carrying forward of the statues round the buttresses destroys the necessary vertical lines; the towers, inspired by Laon, come out of the facade without apparent connection with it, and there is such a crowd of sculpture and galleries and fretted gables that it is not easy to understand how they are carried on the mass of colonnettes and pinnacles, open work, and carving. And not one cathedral is complete. They all lack their spires. The towers at Amiens were cut in half down the middle for lack of funds, and finished in a hurry when the first impulse had died out. Reims was set back on its ground floor and finished flimsily for the same reason. But what noble gateways to the heavenly Jerusalem as the builders of St. Ouen called their church. Never was a glorious dream more marvellously transmuted into stone than in those triple-storeyed portals, compassing about those passing in to worship with so great a cloud of witnesses, and bidding them as they enter look up to Jesus, the author and finisher of their faith, their Judge that shall be at the last.

And in the interior also the story is the same. In the English church we may trace the stolid acceptance of existing facts which preserves all that has gone before, however imperfect, and, adding here and changing there, makes up a building humble-minded as it were, with a wooden roof perhaps, content to suffice for the needs of the present, telling in every corner of the makeshifts of the past, with no sign of anxious unrealised ambition for the future, incapable of perfection because begun and ended incessantly and most often without continuous design, yet breathing out an indescribable charm of sympathy, almost human in its loving reverence for the results of all the past efforts of the bygone generations.

But in the other, the soaring lines which guide the eye upward ever to the vault of stone poised miraculously on its walls of painted glass, seem to tell of those whom

God whispers in the ear

For whom earth had attained to heaven—there was no more far nor near—

of those who, greatly daring in their implacable logic would sweep ruthlessly away all that had gone before, for they had dreamed to raise a structure complete and harmonious all through, the absolute expression of one over-mastering ideal of future perfection, but bound to remain incomplete at the last from the weakness of all human means and efforts, for they had aimed

At the high that proved too high, the heroic for earth too hard.

Yet therein lies its undying power. While our cathedrals tell of the strong consciousness of the historical continuity of the nation, which has made of the English a governing and imperial race, the mediæval architecture of France is the expression of that logical and artistic nature which has made the French through all European history the originators of the noblest social ideals, and the expon-

ents of their highest expression in art. And here it is that the French art towers far above the English. Put Lincoln and Reims side by side. The latter seems far more the expression of the nation's soul. So far as a building only makes use of its materials dexterously, appropriately, beautifully even, with limbs and fingers only, it falls short of the highest; so far as it lays open the soul of the man or of the race, it reaches it.

Let me sum up. I have tried to bring before you not mere differences of style founded on details of moulding or tracery, things interesting but of little real importance, but to show you how English and French mediæval architecture are, each of them, the outcome of the character of the race, the result of the history of the nation, the expression of the people's faith and ideal.

The same national characteristic of "drift" for which we are paying so awful a price to-day which has always taken us muddling along with no definite aim or plan for the future, and which led Edward III. in his blundering rush across Northern France till he was brought to bay on the hillside of Crécy, led also the workmen of his time to close their vaulting panels just anyhow provided they got them closed; the same sturdy common sense and determination to stand shoulder to shoulder in whatever they undertook, which made the King dismount his knights and place them side by side with the peasants, row over row on the terraces thrown up on that gentle slope and which gave them all when thus united the power

to turn to flight on that famed Picard field

Bohemia's plume and Genoa's bow and Caesar's eagle shield;

made them also build their walls always thick enough to carry the vaults, or else rest satisfied with a wooden roof and caused them in like manner to be content to mend and patch their heritage from the past rather than sweep it all away in the hope of replacing it by some marvel of quite unattainable perfection in the future—till in the end the gradual blending of classes and of their aspirations made itself felt in their art as in their social life, and the architecture of the cathedral, the monastery and the castle found its last expression in the village church, the manor house, and the farm. In art, as in empire, the English race has ever been the same—opportunist, realistic, almost incapable in material matters of ever formulating an aim much beyond the present moment, yet blundering half unconsciously, in spite of themselves, into marvellous results in art and empire—and, let us hope, in war.

And so with France. It was the same chivalrous devotion to an ideal which inspired St. Louis to build the Sainte Chapelle to receive the Crown of Thorns, which drove to death the knights at Crécy and Poitiers and Agincourt, which also inspired the burghers of the communes with their wild enthusiasm for liberty and with their resolve to find for their thankfulness a visible expression in their vast cathedrals. It was the same pitiless logic and thirst for an ideal which dictated the unswerving policy of Louis XI. and of Richelieu, and which later made the nation sweep away all its past in a torrent of blood, in the vain hope of bringing back the golden age, which also in art inspired the reasoning and the artistic sense whereby the builders of St. Denis and of Chartres were led on from Notre Dame through the perfection of Amiens, the magnificence of Reims, the lovely folly of Beauvais, and the ruinous unfinished beauty of Abbeville, to the last wire-drawn skeleton of a sixteenth-century church. Through it all, up to the very end, these builders were true artists aiming at expressing a something higher than themselves which should draw up into sympathy with them all that was best and noblest in their fellow men.

And their descendants have not changed. How strikingly these characteristics are coming out in this dreadful war! What a contrast between the silent uprising and stern devotion of France, all in a moment, when the Germans were once again outside the gates of

Paris, her self-consecration to the one single aim of beating back the enemy, and our vacillating, shrieking, discordant methods, culminating, however, in spite of it all, in a vague sense of national duty and purpose, which will lead us on to victory, please God, not less surely, but much less impressively than the spiritual determination of our infinitely noble and loveable Ally.

### TESTS OF REINFORCED CONCRETE FLAT SLAB STRUCTURES.\*

(Concluded from last week.)

5. The point of inflection in Group IV. (the group having small capitals) was about two-tenths of the panel length from the centre of the central column, but its exact location is uncertain, since the point of zero unit-deformation on the under surface of the slab was closer to the column than that on the upper surface. The location of the point of inflection probably was influenced by the uneven settlement of the columns.

6. The locus of highest stresses in the bars of a band of reinforcement at a column head followed fairly closely the outline of the column capital through  $180^\circ$ , then branched off and followed the line joining the centres of columns. The locus for the compressive stresses on the under side of the slab parallel to a given band occupied a corresponding position so far as may be determined from the data of the test.

7. In few of the bands of reinforcement in which measurements were taken was the stress higher in the bars on the edge of the band than in the central bars. In most cases the stress was highest in the central bars.

8. In cases where bars were lapped as much as 50 diameters beyond the point of maximum stress slipping at that point occurred without the stress having passed the yield-point strength of the steel. The slipping of these bars supports the ruling frequently made that bars should not be spliced at regions of maximum stress. The slipping of bars evidently affected the action of the slab and may have induced failure.

Bars which did not slip were found to have developed a bond stress averaging over the entire gauge length 187 lb. per square inch. At portions of the gauge length the bond stress must have been much higher than this.

9. Moment coefficients calculated on the basis of the measured stress in the steel were materially higher at the higher load. Though even at the higher load the coefficients were low, the rapid increase with increased load confirms the view that there is danger in placing reliance on the stresses in the steel measured at ordinary test loads as a basis for determining moment coefficients to be used in design.

10. The bending of corner columns and wall columns was an important feature of the action of the test structure. In certain instances this bending was apparent to the eye.

11. The first large crack on the under surface of the slab was in the corner panel of Group IV. near where the diagonal bars were carried from the top of the slab to the bottom.

The location of cracks in the other groups seems to have been influenced by the settlement of the footings, the bending of the outer columns, and the position of the point of carrying the reinforcing bars from the top to the bottom of the slab.

### VI. THE TEST OF THE FACTORY BUILDING OF THE CURTIS-LEGER FIXTURE COMPANY.

Summary.—The following summary is intended to give the main features of the results of the test:—

1. With the load of 500 lb. per square foot distributed over an area equal to that of two panels with a view of making its effect in producing stress as severe as possible, the maximum stress in the reinforcement at the column and midway between columns was about

11,000 lb. per square inch. Calculations made on the basis of design most commonly used in Chicago give a stress of about 25,000 lb. per square inch for this load. However, it seems probable that if a larger area had been loaded to the same intensity the stress developed would have been somewhat larger.

2. The highest unit-deformation observed was near the column on the under side of the slab in the concrete and was measured in the direction of the longer span. Based on a modulus of elasticity for the concrete of 3,000,000 lb. per square inch, this unit-deformation corresponds to a stress of 930 lb. per square inch.

3. The point of zero unit-deformation on the under surface of the slab was closer to the column than that on the upper surface. For this reason the location of the point of inflection is not known with certainty, but the indications are that it was at a distance of about two-tenths of the panel length from the centre of the column.

4. The deflection under twice the design live load plus the dead load was about  $1/1400$  of the span.

5. The cracks were very small, the largest being along a construction joint. The stresses in gauge lines crossing this crack were enough larger than the tension in similar gauge lines not crossing a crack to indicate that the tensile strength of the concrete adds considerably to the resistance of the slab at this load.

6. The recovery was more complete in regions of compression than it was in the regions of tension regardless of whether the measurements were taken on concrete or on steel.

### VII. GENERAL COMMENTS.

General Comments.—As was remarked at the beginning, the circumstances surrounding the floor test of a building are unfavourable to securing definite and uniform quantitative results. The distribution of the resistance of the structure to parts beyond the portion which is loaded and the effect of the tensile strength of the concrete, greatly modify the action of the structure. The physical conditions connected with the tests are unfavourable to securing exactness. Conclusions drawn from such tests must be of a general nature, and must be confined to the general behaviour of the structure. The following comments are given:—

1. The stresses measured in the reinforcing steel were relatively low. It is felt that the values of these stresses should not be taken as representative of the stresses which may be developed in the structure when it is loaded over a large area for a considerable time. That this view is not inconsistent with the general practice in designing reinforced concrete may be seen by examining laboratory tests of reinforced concrete beams which have percentages of reinforcement comparable with those in the flat slabs tested. In such beams measured stresses of 5,000 to 20,000 lb. per square inch in the steel account for only one-fourth to one-half of the external bending moment. In the tests of flat slabs there is no indication that the tensile resistance of the concrete contributes less to the apparent strength of the structure than is the case with beam construction. It is evident that attention must be given to the mechanics of the structure in determining the requirements for making designs.

There is difficulty in evaluating the compressive deformations of the concrete in terms of stress, since the modulus of elasticity of the concrete in the slab may not agree with the values determined from test specimens. The observations on compression are useful in finding the distribution of compressive stresses.

2. For negative moment the locus of maximum stress in a direction perpendicular to a panel edge was a line which followed the column capital for nearly  $180^\circ$  and merged into the panel edge a little distance away from the column capital. In the Schulze Baking Company Building the measurements were of compression on the under side of the depressed head. In the Worcester test structure and in the Curtis-Leger building the measurements were made on the tension reinforcement.

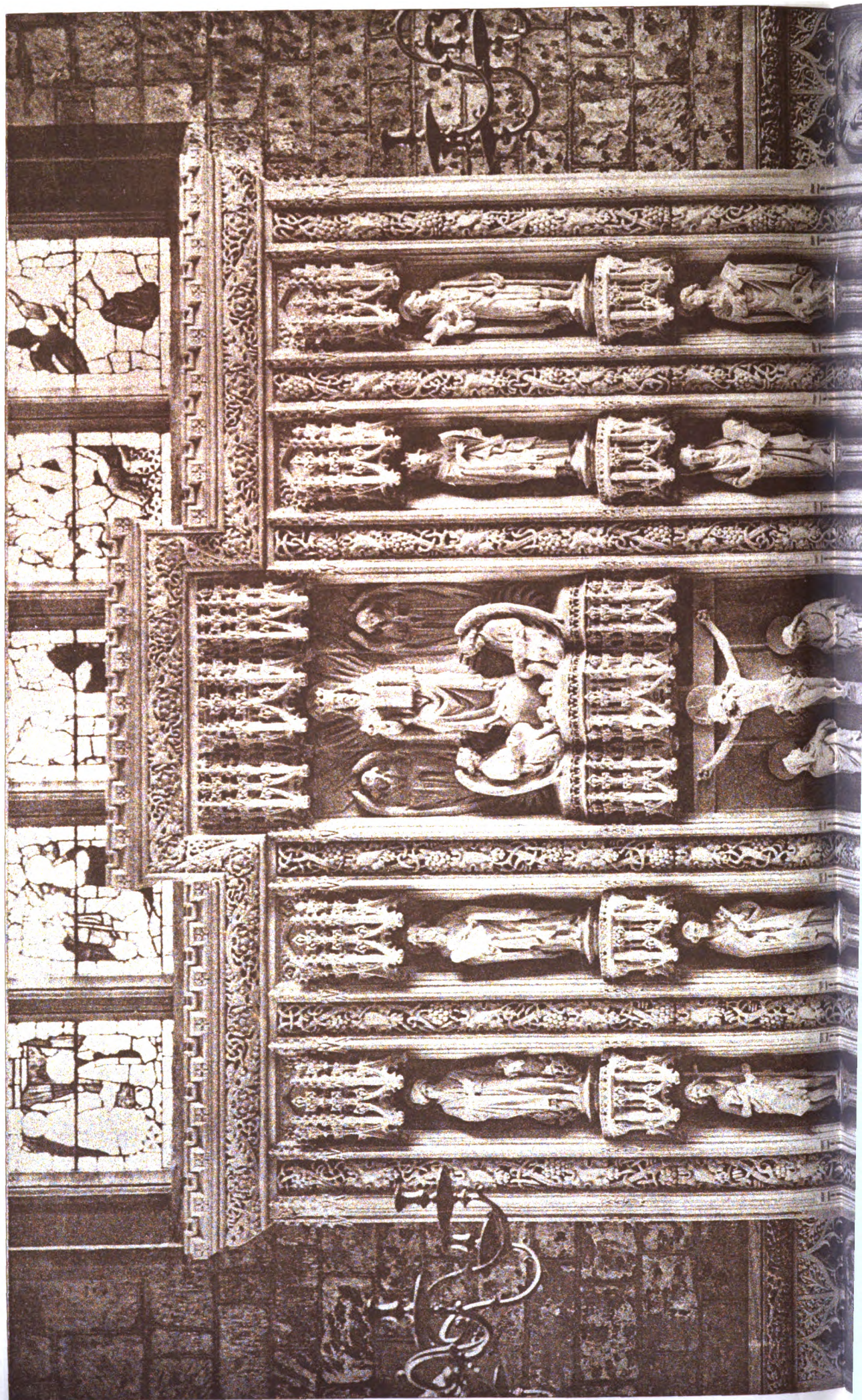
\* Abstract from Bulletin No. 84 of the Engineering Experiment Station, University of Illinois, U.S.A. (Obtainable from Messrs. Chapman & Hall, Ltd., London.)



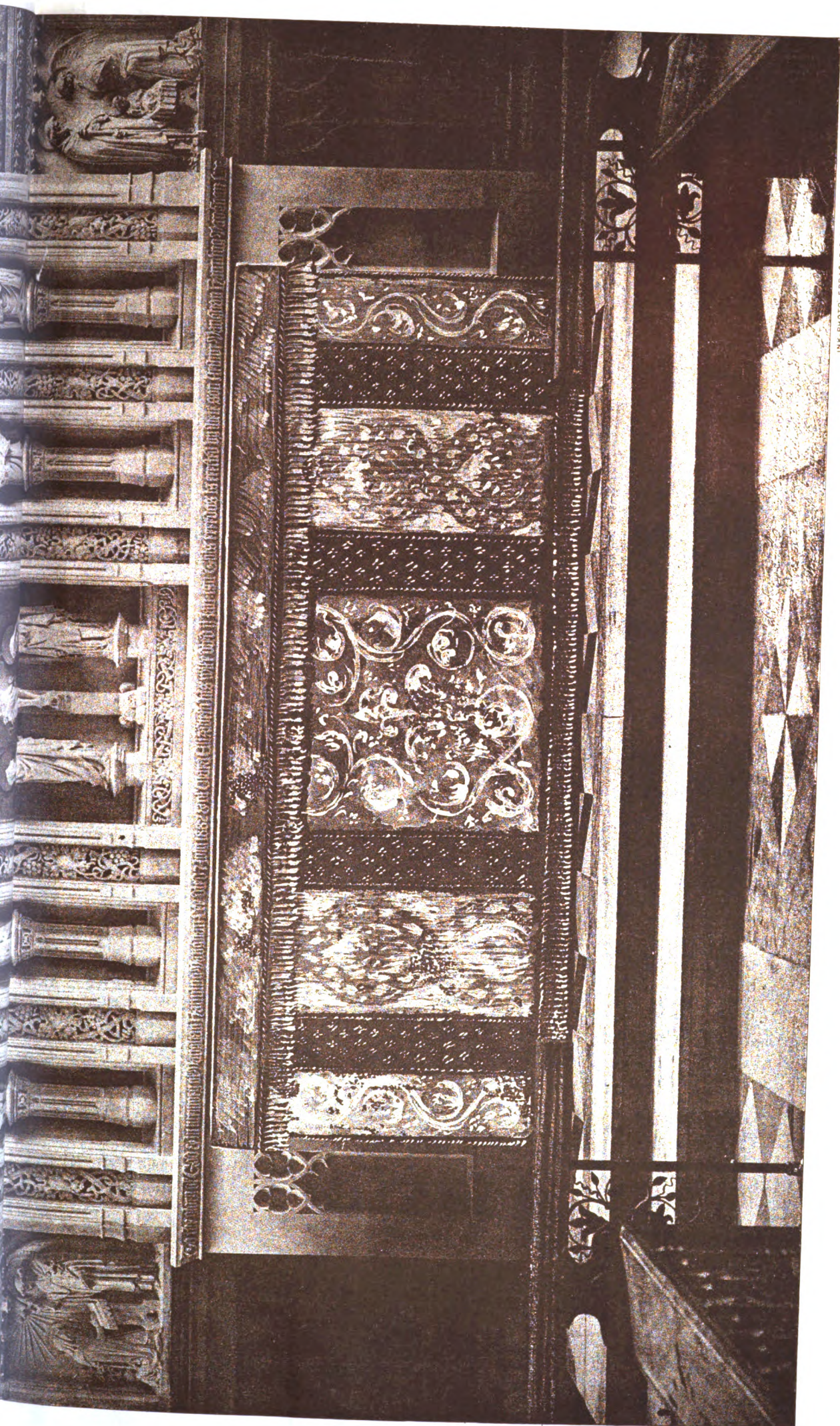




The Architect, Oct. 6th 1916.







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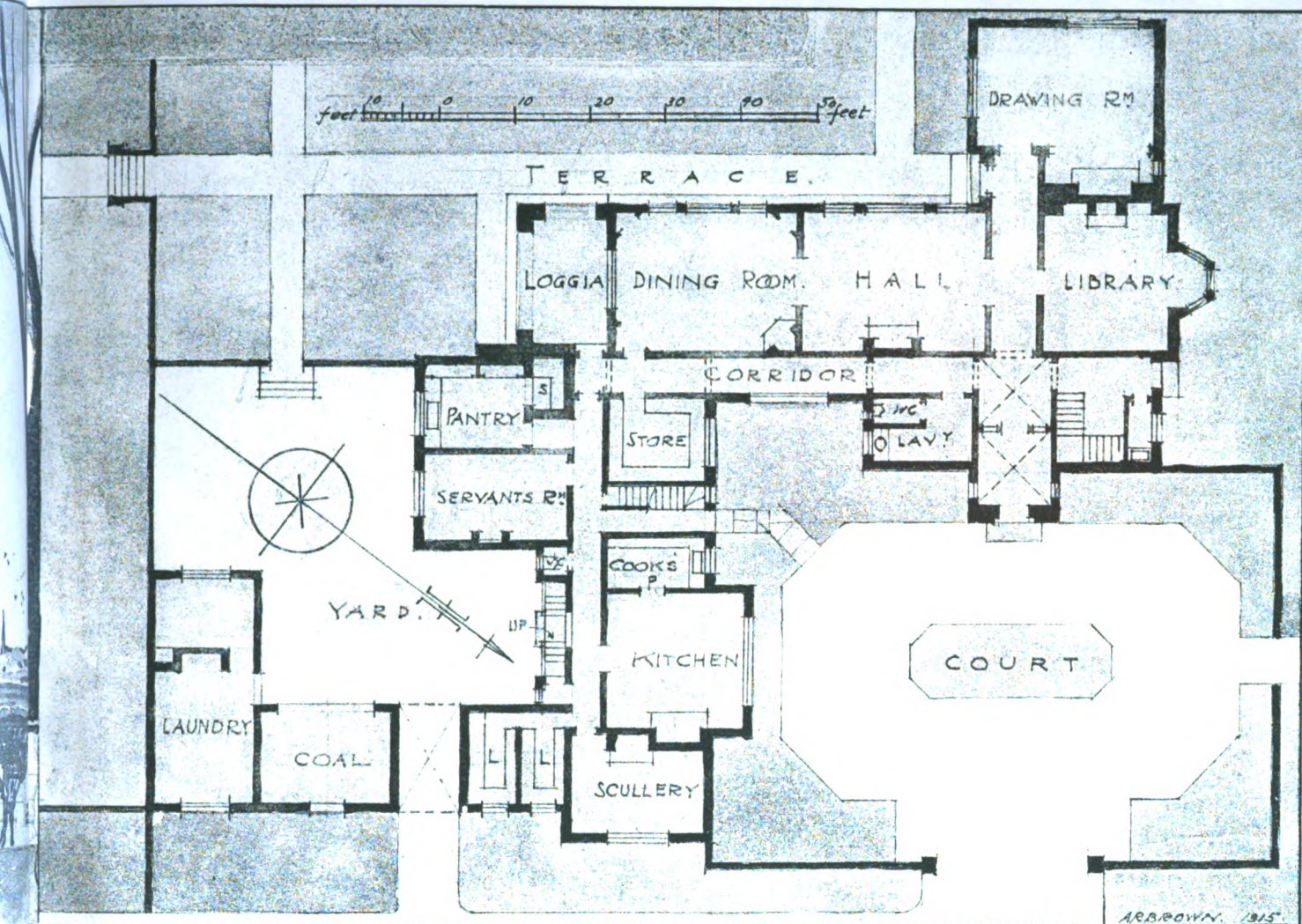
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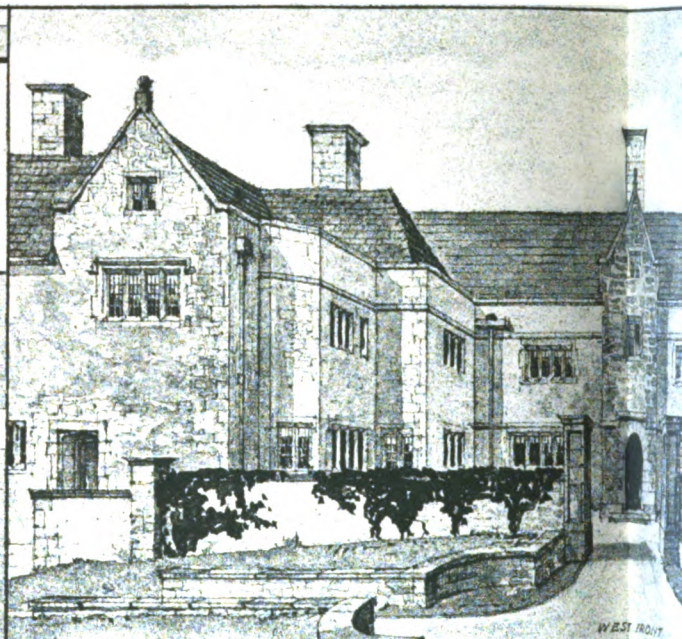
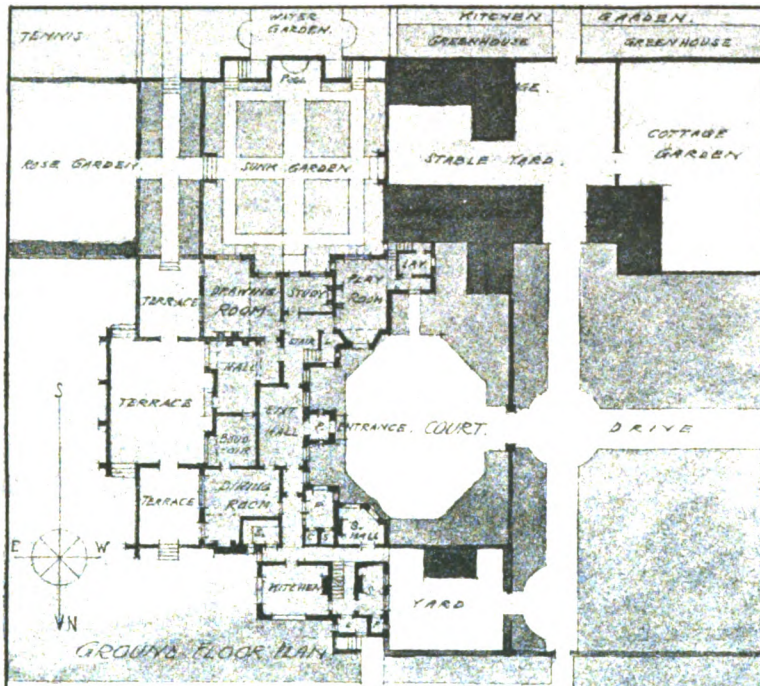




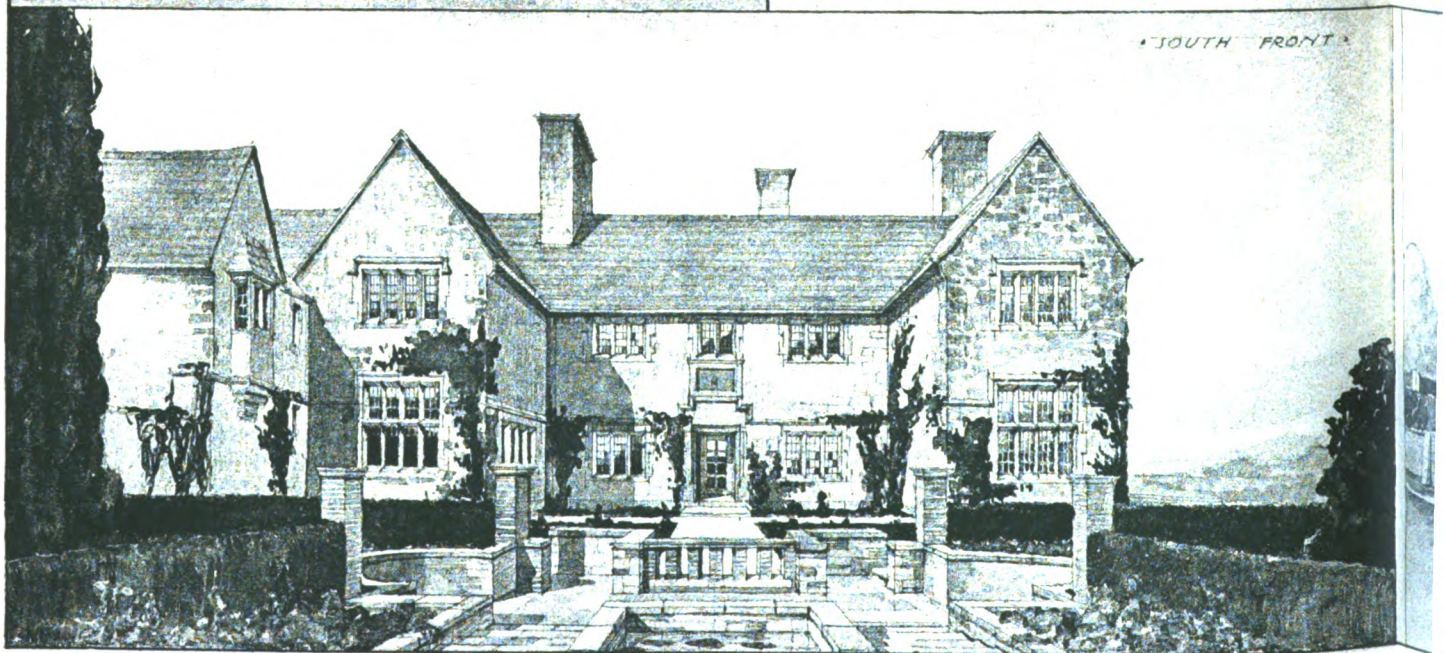








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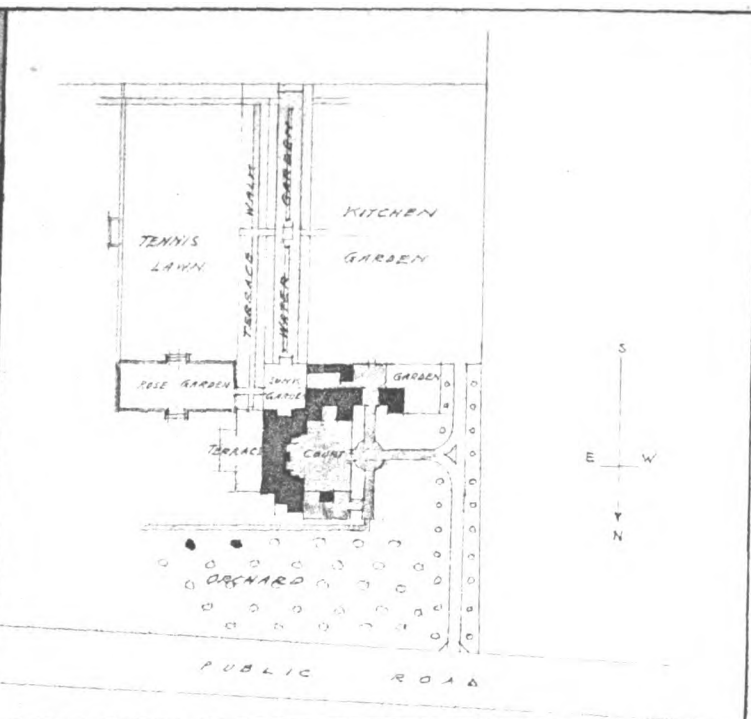
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3. In the Shredded Wheat Factory the tensile stresses resisting negative moment across the panel edge would average as high at locations intermediate between columns as exist at points close to the column. It is apparent that the actual distribution along a section of negative bending moment would be affected by the size and spacing of the bars crossing the section.

In the Schulze Baking Company Building also it appears that bars across a panel line at a location midway between columns developed resistance to negative bending moment.

Information having a bearing on the distribution of tensile stresses across panel lines was not obtained in any other test discussed in this bulletin.

4. In the building in which there were depressed heads around the column capitals and in which information was obtained on the distribution of the compressive stresses over the section of maximum negative moment, the Schulze Baking Company Building, there were indications that the compressive stresses of the negative moment were taken almost entirely in the portion of the section within the width of the depressed head and that there was very little compression in the thin portion of the section between depressed heads. In the Worcester slab, which had no depressed heads, at the load of 215 lb. per square foot the compressive stresses in the section of maximum negative moment were distributed along the section for the full width of the panel, although the stress midway between columns was less than that closer to the column. In the Curtis-Leger Building compressive stresses were found in the section of maximum negative moment as far away from the column capital as measurements were taken.

5. In the building having a relatively large thickness of depressed head, the Schulze Baking Company Building, the compressive stresses on the under side of the thin portion of the slab close to the depressed head and perpendicular to its edge were nearly as large as those in the same direction on the depressed head close to the column capital.

6. An increase in the deformations in the section of maximum positive moment was found when the loaded area was changed from a group of panels to a row of panels. This change of loading was made in the Shredded Wheat Factory and in the Soo Terminal. How much of the increase may have been due to a proportionally smaller contribution by the tensile resistance of the concrete is not known, but it is evident that the positive moment must have been increased considerably by this change in loading.

7. High bending deformations, due to eccentric loading, were found in columns located at edges of loaded areas. In the Shredded Wheat Factory a severe bending moment in a column of the basement storey was observed when panels of the first floor on one side of this column were loaded. Even with nine panels loaded bending deformations were found in interior columns, evidently due to difference in the slab moments on the two sides of the column. In this case the bending was in a direction opposite to that found when the column was at the edge of the loaded area. In the Soo Terminal, a one-storey structure, marked bending phenomena were observed in columns at the edge of the loaded area, and tensile deformations were found of such amount that even considering the compression due to dead load the tensile resistance of the concrete must have been exceeded. The position of the point of inflection of the elastic curve of flexure was in fair agreement with the usual analysis. In the Schulze Baking Company Building the bending of columns at edges of the loaded area was an important feature of the action of the structure in the test, the largest bending apparently occurring in a column at a corner of the loaded area. In the Worcester Slab Test, the bending of certain wall columns and corner columns was apparent to the eye, and large tensile deformations were observed in the column reinforcement. Although the bending action was not differ-

ent from that which may be obtained by analysis, it seems well to call attention to the phenomena observed, since provision for resisting the bending moment produced by the eccentric loading of columns (both wall columns and interior columns) may be overlooked by some designers.

8. In the one building in which load was applied to a wall panel having a lintel beam, the Shredded Wheat Factory, diagonal cracks were found on the interior side of the lintel beam near its ends. None were found on the outside of the beam. The cracks extended upward and away from the ends of the beam. The phenomenon was probably the result of the twisting action produced by bending moment developed in the slab at its edge by the load on the wall panel and transmitted to the lintel beam through the monolithic connection between the slab and the beam.

9. In the two one-storey structures tested, the Soo Terminal and the Worcester test structure, the unevenness of settlement of the footings was sufficient to interfere with interpretation of the results. In a building of several storeys the rigidity of the structure may be expected to cause it to settle more as a unit. It is evident that in a one-storey structure unusual precautions should be taken to guard against uneven settlement.

10. The tests which have given most definite results and results most useful for comparison with analytical treatment have been made on slabs whose thickness was small in relation to the span.

11. Progress in obtaining experimental knowledge of flat slab structures may best be made through a series of tests on structures designed solely for test purposes and planned systematically to bring out the fundamental differences between different types of design and the effect of varying certain elements of design. Occasional tests of floors may give interesting information, but the differences in design and construction among the different structures may be so unsystematic as to make the results not comparable, rendering them useful mainly for judging of workmanship and the efficiency of the design.

## ROMAN REMAINS AT TEMPLEBOROUGH.

THE Rotherham Free Library and Museum Committee at their last meeting considered the following letter by Mr. Bushe-Fox on the subject of Templeborough:—

Society of Antiquaries of London.

Burlington House, Piccadilly, W.

Dear Sir,—Having visited the site of the Roman camp at Templeborough, and examined some of the remains found, I have drawn the following conclusions:

The excavations that were carried out in 1877, although of interest, were not on a sufficiently large scale to give any definite results. Considerable remains of buildings were discovered, but without further excavation it would be difficult to assign them to any particular use. One at least of the rooms was heated with a hypocaust, or system of hot-air heating; the walls appear to have been of good masonry, and on the south and east sides were porticoes or colonnades with stone columns, which suggest that the building, or buildings, were of some importance. The rampart, which is very strongly defined on the north and west sides, contained fragments of tiles, pottery, &c., and had been thrown over a pavement in connection with the southern colonnade. Two road-levels superimposed one above the other, and separated by as much as three feet of soil, burnt material and building rubbish, were also met with. This evidence clearly points to at least two periods of occupation. The existing ramparts appear to have been the boundary of the later camp, but there is no evidence to show the size of the earlier, and the remains of buildings found to the south near the modern road may even have been included in its area. It would also appear that the early camp had been destroyed by fire.

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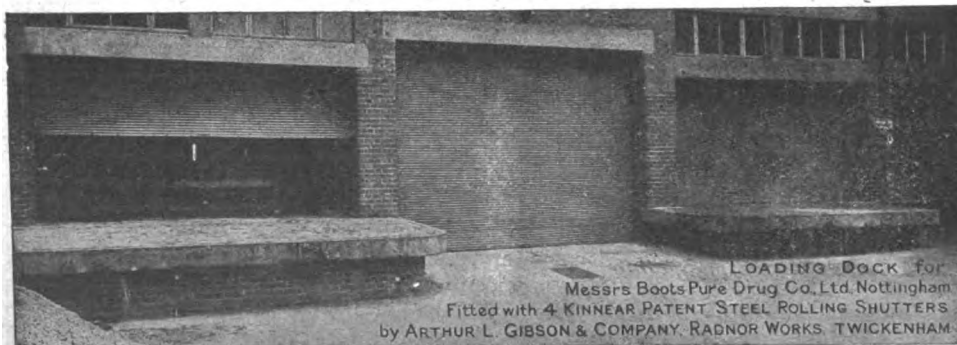
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Sufficient evidence can be gathered from the fragments of pottery &c., in the Rotherham Museum to prove a first-century occupation, and it is more than likely that the Romans first came there in the reign of the Emperor Vespasian, when the General Petillius Cerealis between the years 71-74 A.D. was operating against the Brigantes who inhabited this district as far north as the Tyne and Solway. Little is known about this campaign or the fighting that took place during the following fifty years.

The tribes were defeated, or driven back, but appear to have broken out more than once, and early in the second century the ninth legion must have been destroyed, as it is not heard of again.

It is to the excavation of sites like Templeborough that historians must look for information to fill up the blank pages of the history of this island. That the site was important is evident, and the fact that the early camp was apparently burnt, and that the remains were then sealed by the later building strengthens the probability of interesting and valuable objects being discovered.

That a site of this description should be destroyed forever by the erection of modern works or buildings before it has been scientifically explored would be national disaster. It must also always be borne in mind that to carry out full and properly conducted excavations at least two years' work would be necessary, and it would be most unfortunate were excavation to be deferred until the imminence of building operations made it impossible to carry it out to a satisfactory conclusion.—Yours faithfully,

(Signed) J. P. BUSHE-FOX.

The Town Clerk, Rotherham.

The Mayor reported to the Committee that the Town Clerk and himself had that day made an inspection of certain specimens which had been discovered in the course of the excavation work. The Committee authorised the Town Clerk to have an interview with Mr. Bushe-Fox or Sir Hercules Read with a view to one of these gentlemen making a further inspection of this camp during the carrying out of extensions of the works of Messrs. Steel, Peech & Tozer, Ltd. They also authorised the Town Clerk to take all such further steps in the interests of the Corporation as he might find necessary.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### Federal Parliament House, Canberra.

SIR,—The Australian Government announces the resumption of the architectural competition to select the architect for the Parliament House in the new capital city.

This competition was opened in June 1914, and suspended in September 1914, owing to the war, but is now reopened on the original conditions to all friendly countries (enemy subjects not being eligible), the date for receiving drawings being extended to January 31, 1917, at London and Melbourne.

Programmes can be obtained by application to the High Commissioner for Australia, 72 Victoria Street, Westminster, London, or to the Works' Departments respectively of the British Dominions, or to the British Embassies at Madrid, Paris, Rome, Petrograd, Stockholm, or Washington, from which foreign offices, as well as the High Commissioner; supplemental texts in French or Esperanto may also be obtained when prepared.

Outline sketch designs only are required.

Eight prizes, aggregating £6,000, are offered; the first being £2,000.

An international jury of the following architects are asked to make the awards:—George T. Poole, Australia; Sir John J. Burnet, Great Britain; Victor Laloux, France; Louis H. Sullivan, U.S.A.; Eliel Saarinen, Russia.

In view of the importance of this project, the distances involved, and the shortness of time remaining, it is thought that wide and earliest possible publicity will be appreciated by the profession, as it will also be by—Yours truly,

W. B. GRIFFIN,

Federal Capital Director of Design and Construction.  
Melbourne: August 15, 1916.

## BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### BEDFORDSHIRE.

*Bedford*.—Grammar school: addition for Harpur Trust Governors.

Store, Elstow Road, for the "Shell" Marketing Co., Ltd.

Warehouse, River Street, for the Beds. Co-operative Society, Ltd.

Lynton Works: extensions for Messrs. W. H. A. Robertson & Co., Ltd.

Queen's Engineering Works: additions for Messrs. W. H. Allen, Son & Co., Ltd.

##### CAMBRIDGESHIRE.

*Cambridge*.—Additions, Chesterton Road, for Mr. J. Bester.

Garage and Stables, Homerton Street, for Mr. J. S. Conder (of Cherryhinton Road).

##### CHESHIRE.

*Cheadle*.—Four houses, Hawthorn Road, Gatley, for Mr. H. C. McCulloch.

*Cheadle Hulme*.—House, Ladybridge Road, for Mr. M. Brown.

##### LANCASHIRE.

*Cadishead*.—Proposed Wesleyan Sunday school.

*Oldham*.—Proposed R.C. Church and school, Chadderton.

##### LEICESTERSHIRE.

*Hinckley*.—Factory, John Street: additions for Messrs. Callington & Sons, Ltd.

Premises: alterations for Messrs. W. Pickering & Sons.

##### LINCOLNSHIRE.

*Limber*.—Cottages, for Rt. Hon. the Earl of Yarborough.

##### MIDDLESEX.

*Hounslow*.—Boiler-house, &c., Trafford Road, for Messrs. Earley & Sons.

Buildings, Kingsley Road, for Mr. W. Dand.

Offices, Douglas Road, for Mr. J. Elmes.

##### NORTHUMBERLAND.

*Wallsend*.—St. Peter's (mission) church, hall, classroom, &c. (£1,000). Mr. C. S. Errington, A.R.I.B.A., architect, 21 Grainger Street West, Newcastle-upon-Tyne.

##### STAFFORDSHIRE.

*Streethly Wood*.—Motor and engine house, for Mr. W. G. Leckie.

##### WORCESTERSHIRE.

*Kidderminster*.—Warehouse, Stour Vale, for Messrs. Baldwin, Ltd.

##### YORKSHIRE.

*Bingley*.—Bowling Green Mills: addition for Mr. J. H. Beaver.

*Brighouse*.—Woodhouse Works: additions for Messrs. J. Blakebrough & Sons.

*Saddleworth*.—Proposed mill for the Co-operative Wholesale Society.

#### WALES.

*Colwyn Bay*.—"The Croft," Marine Drive: additions and alterations for Mr. W. Wooler.

House, corner of Ebberston and Kenelm Roads, for Mr. W. Evans.

*Port Talbot*.—Gas-engine house, Aberavon: conversion into mortuary.

*Rhos*.—"Gilberstone," Marine Drive: addition for Mrs. Guest-Gilbert.

"The Links," Marine Drive: alterations for Mr. McCornell.



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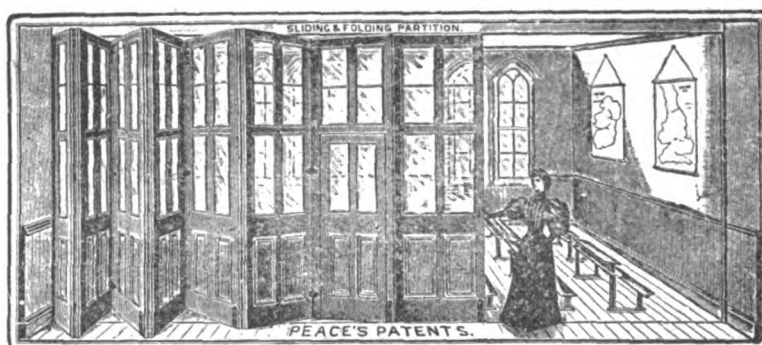
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# THE ARCHITECT

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### SCIENTIFIC AND INDUSTRIAL RESEARCH.—III.

AMONGST the many aspects of scientific industrial research considered by the Committee of the Privy Council in their report is that of the existing impediments to the prosecution of remunerative investigations. Foremost amongst these the Committee places the small scale on which most British industrial firms have been planned, and which militates against the conduct of those long and complicated investigations which are necessary for the solution of the fundamental problems lying at the basis of our staple industries. For example, the Paper Makers' Association of Great Britain and Ireland pointed out last year to the Advisory Committee on Commercial Intelligence under the Board of Trade that "as matters stand at present, the paper maker who desires scientific investigation in new lines of research suffers from two disadvantages. He must personally bear the whole burden of the high fees of the scientific expert, and he receives the benefit of the skill and knowledge of a single investigator only."

The report of the Committee touches on the impediment to research due to the present day methods of British Joint Stock Banks, which, by their limitation of credit, strangle enterprise by small industrial firms. The conversion of businesses into limited liability companies also has a tendency to restrict research. But an even more potent factor is the fear that there is no security that new ventures will not be left, when peace comes, to shift for themselves as best they may in face of the highly organised competition of our enemies.

The Council recognise that if a healthy condition of inquiry is to be fostered in the scientific industries, they must, for some time to come, expend a good deal of attention and money upon convincing the manufacturing world in general that scientific research is a paying proposition, and they intend to issue under the title of "Science and Industry" a new series of pamphlets which will show their fellow countrymen something of the progress that America has made in the direction of industrial research, and give them some indication of the competition that awaits them in the future.

It should be noted by manufacturers that the ordinary "works" laboratory does not fill the whole field of profitable industrial research. The function of this kind of establishment is the control of the quality of raw materials, finished products, and processes. Beyond this there is needed an "industrial" or "efficiency" laboratory where improvements in products and in processes tending to lessen cost of production and to introduce new products on the market can be worked out. A third type of laboratory—the true research laboratory—is, however, required, extending beyond the superficial

processes of industry to an investigation of the fundamental and underlying theory of the subject. By this alone will the most valuable and influential results of research be attained, and it is of the necessity for this type of research laboratory that the conviction of manufacturers must be attempted.

Such a type of laboratory must be large, elaborately equipped, and heavily staffed, and it would be engaged on work that for many years would be unremunerative, and, for a considerable time after its foundation, would obtain no results at all which can be applied by the manufacturer. Few, accordingly, of our British industries or firms would be able or willing to bear the whole cost of such an establishment.

The Universities and public Research Institutes must, therefore, it would appear, become the homes of deep-rooted research, and the question arises how far these institutions can be brought into co-operation with individual firms without, on the one hand, hampering the academic freedom of the University professor, or, on the other, endangering the property in any results of the research which should belong to the manufacturer.

Research undertaken exclusively for the benefit of one among a number of competing firms, either by a public institution or at the cost of the State, is always likely to give rise to difficulties. Universities and cognate research bodies are maintained by endowments and public funds for the common good, and any arrangement which gives exclusive rights or benefits to a single firm as against others in the same industry is not easy to reconcile with the public advantage. If we take the procedure of the German Government as a model, it will be found that, although it spends lavishly upon scientific education and research, and assists a whole industry by suitable tariffs, preferential railway and canal rates and harbour dues, it does not use the taxes, either local or Imperial, to pay for research in the interest of a single firm, nor do the German Universities and Technical High Schools give exclusive privileges to an individual manufacturer.

With regard to the question of the establishment of special Research Institutes for the investigation of the scientific bases of a whole trade, the Committee of the Privy Council, in opposition to the opinion of some leading scientists in America and to the generality of German practice, seem to incline to the view that, under the conditions prevailing in the United Kingdom, a place may be found for the Universities in some at least of these more comprehensive and complicated researches, and with this view we are disposed to agree. Certainly we feel that the results already achieved by means of separate technological departments closely related to specific industries that are attached to some of the modern great educational centres support the view. The metallurgical department at Sheffield, the departments of tinctorial chemistry and of leather at Leeds, the engineering departments of the Royal Technical College, Glasgow, the departments of economic botany and of engineering at the Imperial College, the departments of mining and brewing at Birmingham, are obvious examples.

The advantages of a close connection between educational and research institutions include first the fact that it will be easier to attract the support of the trades if provision is made for training their higher staffs as well as for investigating their difficulties. In the next place it ensures the continued contact of the research worker with advanced students. Finally, it enables the use to the utmost advantage of the very limited number of original workers at present available either for research or for teaching. This is a consideration of very practical importance, for if Research Institutes were in all cases to be established independently of our Universities and Colleges there would be grave danger of depleting our educational institutions before they have had time to produce the number of workers which the industries will need if progress is to be made.

In the conclusion of their report the Committee thus summarise the conditions that appear to them necessary for the success of their work. First, a largely increased supply of competent researchers; secondly, a hearty spirit of co-operation among all concerned, men of science, men of business, working men, professional and scientific Societies, Universities and Technical Colleges, Local Authorities, and Government Departments. And neither condition, say the Committee, will be effective without the other.

The report of the Committee of the Privy Council for Scientific and Industrial Research thus shows that a great deal of good work has been accomplished within the first year of its existence, and gives promise of future satisfactory progress in the organisation of the scientific research vitally necessary to enable British industry to maintain, not to say extend, its position in the world's commerce.

### THE ARTS AND CRAFTS EXHIBITION.

THIS year's enterprise of the Arts and Crafts Exhibition Society is in many directions epoch-making. It is accommodated in the rooms of the Royal Academy, and thereby gains the opportunity of attracting the general public, who regard Burlington House as a sacred temple of art. It is quite right and a good sign of the times that the pundits of the Royal Academy should recognise publicly the existence of art beyond the limits of an oil-painting in gilt frame, and we trust the public generally will follow their lead as usual. For once the possibilities of decorative wall treatment by a combination of architecture, painting, and sculpture have a chance of being appreciated, through the bold transformation scheme of the Academy rooms and the labours of love of Augustus John, Charles Sims, Maurice Greiffenhagen, Gerald Moira, George Clausen, Anning Bell, and others. This Exhibition also marks a reformation in faith on the part of the leaders of the Arts and Crafts movement. They have assimilated the truth which we have so frequently reiterated in the columns of "The Architect," that a thing need not necessarily be ugly or bad art because it is made by machinery. We now have from the Committee the following profession of faith:—

"It is evident in the near future that machinery may play a much more important part in our daily needs, and objects in daily use may be produced in thousands from stampings. But there is no need for such stampings to be ugly. They are only ugly if the artist has no feeling of beauty. Moral: See that your stamps are cut by artists. In the Exhibition will be found a series of special tools for stamping made by the students in the Victoria Street School of Art in Birmingham, from which it will be seen that the possibilities of stamping work are almost limitless and that the tool itself may be quite a beautiful thing. Indeed, to produce beauty the tool must be beautiful.

"In considering the future one should remember that production on a large scale need not mean wholesale ugliness. We need to utilise fully the great creative productiveness of our workers and see that, while we are gladly sacrificing life and treasure for other countries, we must insure for our own country creative and artistic liberty. We have been taught morality and theology in our schools, but the laws of art and craft have been unhappily neglected. Yet none can see the Exhibition without realising that the work which constitutes it has always brought at least content if not the deepest happiness to its producers."

The organisers of the present Exhibition probably did not quite appreciate the magnitude of the work embraced in their bold scheme of reorganising the rooms containing the Exhibition, and failed to realise the difficulties imposed by the present dearth of labour in the labour trade for any but war purposes. Hence the present incomplete and even chaotic state of the Exhibition, which precludes criticism or satisfactory description. It

is unfair to judge of a scheme of decoration that is incomplete or of an assemblage of articles that are not all in place and not yet catalogued.

### NOTES AND COMMENTS.

ALTHOUGH it is irksome to find the Ministry of Munitions slow to grant a licence when we want to do a little building, it must be remembered that practically every man in the building trade is wanted, if not for the Army, at any rate for providing for the Army's needs, and thus one can appreciate the following statement issued by the Ministry of Munitions:—

"The continued demand for labour for the construction of munition factories and other buildings of urgent national importance, and the enormous demand for steel for the purposes of the war, have compelled the Ministry of Munitions, in the national interest, to place certain restrictions upon private building. It would be idle to pretend that the restrictions will cause no inconvenience. What is important to make clear is that such inconvenience as the regulations may entail is an unavoidable consequence of the nation's urgent need. Every trade in the country has had to take its share in the great task of finding men for the Army. The building trade has had the additional duty of assisting in the equipment of the forces, for the immense increase in the output of munitions could never have been achieved if new factories had not been constructed at unexampled speed.

"Nor is the work by any means finished. Mr. Montagu, in his statement in the House of Commons, said: 'I hope that the country will not think that all has been accomplished.' There are, indeed, many new factories which urgently require more building labour for their completion, and the housing of those who are to work in the factories is also a problem which must be faced. At the same time, every available man must be released for service in the Navy or the Army. It is obvious that, under these conditions, private building must be restricted, and that building labour must be used to supply the most urgent national needs. The necessity for restriction is made still greater by the fact that the use of constructional steel in private building work limits the available supply of a material which is essential for the prosecution of the war.

"Some inconvenience all those connected with the building industry must be prepared to face, in the interests of a nation at war. The demand for building labour for munitions factories and other national work is large. The public would be well advised to take advantage of the period during which the regulations are in force to get plans prepared for future undertakings, so that work may be ready to start when the demobilisation of the Army begins after the war. If this can be prepared for beforehand it will be of great advantage when the problems of demobilisation become urgent."

The sale of a remarkable collection of etchings and drawings by Charles Meryon has revived interest in that wonderful genius of the first half of the nineteenth century, who rescued etching from the slough of despond in which it had remained since Rembrandt's death.

London University Extension Lectures this winter will include a course of twenty-four lectures on English architecture from the earliest times to the present day by Mr. Banister F. Fletcher, F.R.I.B.A. These lectures will be delivered in the lecture theatre of the L.C.C. Central School of Arts and Crafts, Southampton Row, on Thursdays at 6 P.M., the first being on October 5.

There appears to be justice in the latest grievance of Dublin citizens relating to Government contributions towards the rehabilitation of the destroyed Sackville Street area. The property owners concerned allege that they cannot get information from Dublin Castle of the





DOORWAY AT "SEVEN GABLES," WILMSLOW.

amounts of compensation that they may expect to receive, although the recommendations of Sir William Goulding's committee have been forwarded to the Irish Government some time since. The date of payment is, of course, a secondary matter, far less important than the amount of compensation in enabling the owners of destroyed property to make their arrangements for rebuilding.

It is unfortunate for the citizens of Edinburgh that their Town Council and the Tramways Company are at loggerheads, for it renders difficult the electrification of the tramways on the expiry of the company's lease three years hence. It is a pity that there should not be a spirit of give-and-take infused into the discussion of the legal rights of lessor and lessee, when a modification might be to the public advantage.

The wealth of the York Merchants Adventurers in valuable fourteenth-century records—far exceeding in number and importance the records of the London, Bristol, or Newcastle Adventurers—was demonstrated at the annual Court, held in the ancient hall of the Company, Fossgate, York. A large number of deeds, cartularies, and seals in the possession of the Company were on public view, and their exhibition was largely due to the enthusiasm of Miss Maud Sellers, D.Litt., the historian of the Company. The generosity of successive Governors in recent years has restored the Governors' Room, in which were shown selections of the more interesting documents. Many of these are in old French and Latin, and to each Miss Sellers has contributed a short explanatory note.

The series commences with the deed by which Sir William Percy conveyed to the Guild of St. Mary, 1356, the land on which the hall now stands. The earliest account roll is dated 1357, and contains a history of the building, or possibly the restoration and alteration of structures already on the site. In the 1367 Account Roll

is allusion to both the hall and the chapel. Of particular value is the deed recording the foundation of the chantry, in 1376, for attached to it are three wax seals in beautiful preservation, the details all sharply outlined—the seals of the Order of English Carmelites, the Order of York Carmelites, and the Prior of the York Carmelites.

Two documents of quite topical interest at the moment, though dating from the fifteenth century, are the complaints of the men of York on German interference with English trade. In the first letter, the York merchants complain that the Germans come to England and sell their goods and take ready money out of the country, refusing to spend it on the commodities of England. In the second letter, they roundly assert it is wicked to use German goods when Yorkshire goods are very much better—"German goods are fair on the outside and evil within."

Other documents exhibited included the original charter of Henry VI., the Elizabethan charter, 1581, a rent-roll of 1501, showing that the Company then owned property in every principal street of York, several account rolls, the Memorandum Book of the Company, 1420-1670, and the Book of Ordinances, 1604. Possibly the most precious document, as a contribution to English economic history, is the account roll of the ship *Katheran* of Hull, 1457, a unique example of early insurance. Among the plate is the Merchants' loving cup; and, for the first time, most of the Merchants present now saw their ancient seal—that of the Mercers' Company of York, which was lost in the sixteenth century, found at Shap Abbey, and restored last year to the Company, by the owner, Mrs. Clayton, of The Chesters, Chollerford. It is a fine example of the fifteenth-century engraver's art, and it is recorded in the account roll of 1435 that it was bought in that year at a cost of iiis.

## ILLUSTRATIONS.

### HOUSE AT HASLEMERE.

THE house at Haslemere has been recently erected from the designs of Messrs. Unsworth & Triggs, architects. The walls, copings, and finials are of specially moulded Daneshill bricks, relieved with purple headers, and the stone used throughout for the windows is from the Doulting quarries. On the ground floor are large hall, drawing-room, dining-room, morning-room, and boudoir, with the kitchen and offices arranged round a courtyard, and on the first and second floors there are thirteen bed and dressing rooms. The stabling and gardener's house is grouped to the north of the main building. The water-colour drawing, of which the illustration is a reproduction, was exhibited at the last exhibition of the Royal Academy. Messrs. Chapman, Lowry & Puttick, of Haslemere, were the builders.

### CHURCH OF ST. FAITH, COWES.

OWING to the increase in the population of Cowes in the Mill Hill district it became desirable to make some provision for the people who were living at an inconvenient distance from the parish church of St. Mary, and a site was secured in a convenient part of the district, on which it is intended to erect, from the designs of Mr. J. Standen Adkins, the permanent church shown in our illustration.

On May 13, 1909, the foundation-stone of a small mission church (shown on the left of the drawing) was laid by H.R.H. Princess Henry of Battenberg, and the structure was consecrated on St. Faith's Day of the same year by the Lord Bishop of Southampton. When the permanent church is erected, this building will be retained for use as a parish hall and Sunday school. The seating is nominally for 200, but accommodation has been found for a much larger number on special occasions. The cost was a little over £500. The work was carried out by Mr. T. Westbrook, builder, of Denmark Road, Cowes.

### REREDOS IN CHAPEL, HOLY CROSS RETREAT HOUSE, LIMPSFIELD.

This reredos has been given by the donor of the stalls and screens illustrated in our issue of September 10, 1915. The projecting canopy was adopted to clear the heavy cove, so that the structure could be carried up to the highest part of the ceiling in order to counteract to some extent the depressing effect of the low proportion of the chapel.

The work has been executed in oak by Messrs. Dart & Francis, of Crediton. The centre group and the statues of St. Teresa and St. Ignatius Loyola have been carved by Mr. J. E. Taylerson, of 22 Marney Road, Lavender Hill.

### THE KING'S ANKUS.

This is a study by Miss Gertrude Adkins for the decorative treatment of the story of the King's Ankus in Kipling's "Second Jungle Book," to form one of a series of panels containing subjects taken from Eastern legends.

### THE AUSTRIAN BOMBARDMENT OF VENICE.

A VENICE correspondent of "The Scotsman," writing on September 19, thus describes the attempts of the Austrians on the church of SS. Giovanni e Paolo:—

After San Marco, the church in Venice which is most closely associated with the glories of the old Republic, and the memories of her Doges and warrior sons—

" . . . men more than kings,

Whose laurels fade not, who still walk the earth,"

is SS. Giovanni and Paulo, in Venetian dialect Zanipolo (Saints John and Paul). It is the largest basilica in the city, measuring nearly 350 feet long by 50 broad, with a barrel roof. It is situated in the north-eastern quarter of the city—an historic building in the midst of historic buildings. In its campo stands the famous equestrian statue of the condottiere, Bartolomeo Colleoni, of which Mr. Ruskin says:—"I do not believe there is a more glorious work of sculpture existing in the world." Between the church and the lagoon extends the Scuola di San Marco and the old Dominican monastery, now together with added buildings forming the Civil Hospital, with nearly 2,000 beds. Behind it is the old church of San Lazzaro dei Medicanti, with its monastery, now an asylum for aged people.

Zanipolo, thus situated, is the Westminster Abbey of Venice. It is crowded with monuments. Its walls, throughout their whole extent, are covered with memorial marble. Before one enters the church at all, some old sarcophagi, partly built into the wall, attract attention. One of them is that of the Doge, Jacopo Tiepolo (1229-1248), who founded the adjacent Dominican monastery, its site having been fixed for him by a flight of doves alighting upon the site; as is shown on the sarcophagus. Entering the church, the whole history of the Republic seems spread before one. One of the first monuments to attract attention is that to Marco Antonio Bragadino, the defender of Famagusta in Cyprus. When the Turks at last took it they, exhibiting the same spirit of savage inhumanity which they and their Allies do to-day, flayed him alive. His skin, recovered by the Venetians, is in the monumental urn. Here is the mausoleum of Doge Pietro Mocenigo (1474-76). There is the tomb of Michele Morasini (1382), with a mosaic crucifixion in the lunette. There is that of Andrea Vendramin (1476-78), said to be amongst the most beautiful in Venice, and that of the Doge Antonio Verrier (1382-1400). The only horses Venice possesses are in its churches, or over their entrance doors, as at St. Mark's. In this church there are several set high up on pedestals against the walls. In the first choir chapel is the tomb of an Englishman, Baron Windsor (1574). The church also contained many works of art, which, however, were all removed to places of safety, excepting one which could not be taken away. This was

the painting representing the glory of St. Dominic, which covered the ceiling of the chapel dedicated to the saint, the work of Giovanbattista Piazzetta. Zanipolo is the only church in Venice which possesses stained-glass windows. One is by Girolamo Mometto (1473), restored in 1814, and one of enormous proportions and of superb beauty by Vicarini. Fortunately, this latter window was carefully taken down, packed in sections, and removed from Venice before war was declared.

Not one nor twice, but often, the Austrian bestiacci, who know well the value of the church of Zanipolo and the adjoining buildings, have tried to destroy them. And now, at last, they have succeeded in partially destroying the church and the asylum for the aged. One of their enormous bombs fell on the roof half-way up the nave, and then, crashing to the marble floor, exploded with tremendous violence. Splinters of the bomb were sent flying in all directions, hitting and seriously damaging many of the monuments. All the stained-glass windows, including that of Mometto, were shattered to atoms; and, worst of all, as the bomb fell not perpendicularly but obliquely, splinters of it and stones battered the precious ceiling picture of Piazzetta, in the Chapel of St. Dominic, tearing it in many places to shreds. Corrado Ricci hopes it may be possible to piece it together again. A fine altar-piece by Bissolo has also been torn and damaged. Nearly the whole of the ceiling came crashing to the floor, so that this church, which had just been put in a beautiful state of repair after some eight years of labour, is a mass of ruins. The Chapel of the Rosario, with its wonderful marble carvings, representing the Battle of Lepanto, and which has just been restored after the great fire of 1867, is uninjured.

### HISTORIC BUILDINGS IN THE WESTERN WAR ZONE: THEIR BEAUTY AND THEIR RUIN.\*

By the Rev. G. HERBERT WEST, D.D., A.R.I.B.A.,  
Author of "Gothic Architecture in England and France."

(Continued from last week.)

#### FRENCH MEDIEVAL SCULPTURE.

THE history of mediæval Christian sculpture is complicated in its earlier stages by its being the expression of a vigorous new society coming to life amidst, or upon, the dying embers of the civilisation of an effete race. This is curiously illustrated even so late as the eleventh century in the sculptural art of Southern France, where, as at Vézelay and Autun, over the stiff foliage of fairly correctly carved Corinthian capitals may be seen wandering strange, uncouth, northern figures which tell some Scripture story such as the expulsion from Eden or the sacrifice of Isaac. Yet pure classical traditions lingered on, especially in Provence, the only part of the empire where any of the old life was left. Although, as everywhere, there is a great gap between the eighth century and the eleventh, yet it is impossible not to see these traditions reappearing in such remarkable compositions as the great porches of St. Trophime at Arles and St. Gilles (about 1200). In the cloister at Arles there are clear traces of Byzantine influence, but it is not that which preponderates in the porch. Fine as the compositions are as a whole, with good proportions and beautiful detail, yet there is no promise in them, they are lacking in life, in expression—the work is that of an art which is dying, not of one which is being born. This is clearly seen if it is compared with such a contemporary work as the tympanum of the Cathedral of Cahors. Grotesque as that may appear to us now it is full of the power and life and promise which the other lacks. Like the rather later north door in the front of Chartres, it represents the Ascension. The figure of Christ is dignified and full of expression. The folds of the drapery are free and ample, with very little trace of Byzantine

\* The last of three Fothergill lectures delivered before the Royal Society of Arts.

stiffness. There is a roundness and modelling about the figures superior to the flat, fret-sawlike work of the great door at Vezelay, which is of about the same date (1104).

Several schools of sculpture arose in France during the eleventh and twelfth centuries. That which was the first to free itself from classical limitations was the Burgundian. Its chief characteristic is breadth and firmness. It avoids the dryness of Byzantine work and shows a wonderful imaginative power. The Burgundians were already Christians and good workmen when they crossed the Jura, and from their great Abbey of Cluny, founded in the tenth century, issued an extraordinary artistic influence. The abbey itself was destroyed in the Revolution, but we may form some idea of it from Vezelay, the main door of which is one of the most remarkable works left us. It dates from the end of the eleventh century. The upper part of the tympanum represents the Day of Pentecost. The drapery of the Christ and that of the Apostles is tossed about by the rushing mighty wind, and beams of fire from His hands touch the brows of each. The eight square compartments round represent possibly the seven Churches, the bottom one on the left being the Apostle writing under the dictation of the Saviour. There is a life and expression in these figures vastly in advance of the monotony of those of Arles; for example, in the two figures of St. Peter and another Apostle on the right-hand pillar there can be no doubt that St. Peter is gravely rebuking the other, who is listening attentively. The subject of the lintel is unknown. It is perhaps the "Apport," the people of all the earth, as in Acts ii., bringing contributions to the abbey, or it may be an allegorical representation of the Last Judgment, the saved being represented by the Israelites entering Canaan, the lost by the representation of the different vices, Pride being the little man getting on horseback by a ladder; Falsehood and Slander the people with ears reaching down to their feet.

The classical influence is still very strong, especially in the ornamental details, and in the two outer orders of the arch. But it is almost more visible in a somewhat later (c. 1140) but inferior work, the Last Judgment tympanum at Autun, of which we shall speak later. Yet, in spite of this inheritance of the past, one cannot but recognise the promise of the future in the strong dramatic feeling of the whole. At Autun Roman remains were very numerous, and the design of the cathedral is copied from the Roman Porte d'Arroux. The classical influence is most marked in the central pier, where one can see not only Byzantine but pure Greek influence. Let me, before passing on, give one or two more examples of how a classical spirit is occasionally to be found almost to the end of the Gothic period. The beautiful twelfth-century figure of St. Stephen, so dear to the people of Sens that they preserved it even through the Revolution, shows it strongly, and the ornament on the sides of the piers is pure Roman.

But the most remarkable instance is the late thirteenth and early fourteenth century work at Auxerre. It is quite noticeable in the treatment of the nude figure of Bathsheba, and in all the draperies, but especially in the exquisite figures of the Seven Arts, which are worthy of being placed with the Tanagra statuettes, and also in a sleeping Cupid and many of the smaller figures.

We will now rapidly pass on through the semi-classical Burgundian Romanesque of the twelfth century to the fully-developed thirteenth century work of the Ile de France and Champagne.

North of Burgundy, round Bourges, a school of sculpture arose in the twelfth century, in which we find a mixture of many influences, Gallo-Roman, Byzantine, and above all northern Romanesque. This last is specially marked by the elaborate ornamental detail. It is curious how these northern races begin by covering every inch of their buildings with mechanical ornament, much as the South Sea islander covers his paddle. Only gradually do they learn the value of the plain surface and of the concentration of ornament on certain points. On the old side doorways of Bourges, as in the rather earlier

work of Avallon, we find the germ of the glorious porches of the Ile de France with statues placed among the columns. But as they are rightly felt to be part of the architecture, they are made longer than nature. It was not ignorance but true artistic feeling which dictated their proportions. This is still more noticeable in the wonderful west portal of Chartres, dated from 1140, which was moved forward when the cathedral was lengthened in the thirteenth century. The statues are strongly individual, portraits of living persons, not, as was the case later, brought into conformity with an ideal type. The dignified kings and queens with the mysterious smile are those mentioned in St. Matthew's genealogy; but unfortunately statues of kings on the cathedrals were taken in the Revolution to be kings of France, and ruthlessly destroyed, so that much of the early history of French sculpture is lost.

The capitals of the columns are still covered with stories from the Old and New Testament, and their true carrying function is not clearly marked, nor had the complete scheme of sculpture yet been fixed. Thus we still find Christ in the tympanum surrounded by the emblems of the four evangelists, as at Bourges, instead of the Christ in Judgment, which becomes the rule later. The left-hand door represents the Ascension and is worth comparing with the earlier work at Cahors, by which it was perhaps inspired. The right-hand door is the Virgin's door, as became usual in the fully-developed scheme of iconography, of which the first idea is to be found at Laon, and which, during the thirteenth century, furnished a more or less fixed programme to all the great cathedrals. Starting with the three great portals, the central door gives us Christ on the pier as the Judge of the world, with the Last Judgment on the tympanum above Him, and with His assessors, the Twelve Apostles standing on either side of Him, each with his emblem beneath his feet, or, in the earlier examples, seated on the lintel below Him; while on the jambs of the door itself are the wise virgins who entered with the Bridegroom, while "the door was shut" against the foolish ones "who stood without crying, 'Lord Lord, open to us.' " Could any scheme of decoration be more solemnly appropriate to the entrance of the House of God in the arches, patriarchs, saints and angels? The second door, that in the place of honour on the right, was consecrated to the life of the Blessed Virgin, and the third, or the side doors, to the histories of some local saints—St. Firmin at Amiens, St. Sixtus, St. Nicaise or St. Remy at Reims, St. Marcel at Paris. Other doors were consecrated to saints, some of whose relics were amongst the treasures of the Church, St. Anne at Chartres, St. Thomas at Semur, St. Stephen at Paris. Between the doors at Paris, on the great buttresses, were two large figures carrying the line of sculpture across from door to door, the synagogue on the left of our Lord with the eyes blindfolded and the Book shut, the Church with open eyes and open Book on the right, and above, in the great gallery, the statues of the kings of Judah, ancestors of the Blessed Virgin.

The thirteenth century was the age of encyclopædias. Thomas Aquinas summed up all theology, Jacobus de Voragine collected all the legends of the saints in the Golden Legend, Durandus epitomised all writers on the liturgy, and Vincent of Beauvais attempted to embrace universal knowledge. It was on his work, as M. Male\* has shown us, that the whole artistic scheme of the great cathedrals was based, and it was the Cathedral of Laon which first gave the pages on which the story was to be written.

That story is arranged as in de Beauvais' "Speculum" in the four chapters or mirrors of Nature, of Instruction, of Morals, and of History—that is, of the history of the Church. We have then (1) the Signs of the Zodiac in the heavens, the work of Creation on earth, leading up to the creation of man; (2) *Instruction to Salvation*—the

\* "French Thirteenth Century Sculpture," Male. Dent & Co.; and "The Sculptures of Chartres," Marriage. Cambridge University Press.



story of the Fall of Man and of his redemption, the Labours of the Months, the liberal Arts; (3) *In Morals*—the Virtues and Vices the Active and the Contemplative life; (4) *The History of the Old Testament as leading up to the New*—prophets, patriarchs and the kings of Judah, the legendary story of the Blessed Virgin, the Saints and their legends, all leading up to Christ and the Final Judgment and finding its centre there.

The façade of Laon is too early, and that of Paris is so largely a modern restoration, that we had better go for our chief example to the great north and south porches of Chartres, which were finished in the last quarter of the thirteenth century, about forty years later than Notre Dame. That on the north, which is the richer and the more perfect in design, loses by never getting full sun, and must have lost even more at first when they both were painted and gilt. The south porch also gains greatly by being raised on a flight of steps. In no buildings, not even in the Parthenon, is there so perfect a union between architecture and sculpture as in these two porches. Let us begin with the south porch. It is less elaborate than the north, and the square piers adorned with bas-reliefs between the columns are much less effective in their light and shade than the narrow arches and statues of the other. The large statues are, however, even finer, the heads noble and full of character and suggestion of moral beauty, the draperies almost classic in their simple grandeur. Since there is no arcade for the kings of Judah on the west front, they are placed here, six on each side of the porch and three on either side of the central archway.

Since the twelfth century sculptures of the west front were already given to the glorification of Christ, the central door here is the Judgment door. Christ is in the centre showing His wounds, the Virgin and St. John on either side, pleading for sinners, and six angels with the instruments of the Passion, the two lower ones with the lance, the pillar and scourge, the upper ones holding the nails, the crown of thorns and the Cross, which seems to have no arms. On the central pillar is Christ, a very beautiful figure, standing on the lion and the dragon. There are six Apostles on either side standing on their executioners, and in the five orders of the arch the nine choirs of angels.

As specimens of the statues, we may take those of the right-hand door, beginning on the left. (1) St. Leo Pope with a conical tiara; on the pedestal three heads. (2) St. Ambrose pushing the end of his crozier into the mouth of a figure on the pedestal—Maximus, who made himself Emperor in opposition to Valentinian. (3) St. Nicholas, Archbishop of Myra. The man on the pedestal (without a head) is the innkeeper who murdered and salted down three boys, according to the western legend, the real story being that St. Nicholas delivered three officers of the Emperor Constantine from prison. They are shown in the east as three little figures looking out of the top of the prison tower; in the west they were taken for three children in a tub, and the story invented accordingly.

On the right we have (1) St. Martin, the wonder-worker of the west, as St. Nicholas was of the east—a very fine statue. His soul shines in his face, active and severe. Beneath his feet are two dogs whom he stopped from pursuing a hare. (2) St. Jerome, with the Vulgate. Beneath on the pedestal a woman with her eyes bandaged (the Synagogue), with the roll of the Old Testament, which the saint is taking from her; she is trying to hold on her crown, which is falling off. (3) St. Gregory with the conical tiara. He used to dictate to his secretary from behind a curtain. One day his secretary drew back the curtain and saw a dove sitting on his shoulder and whispering to the saint. He is peeping out from the pedestal.

Between the columns on each of the square piers are panels giving the virtues and the corresponding vices, or lives of saints.

In the north porch the most beautiful of the larger statues are—on the central pillar, St. Anne carrying the

infant Virgin, a beautiful figure of an old woman; Solomon, a type of Christ, a fine head with the technical skill of the later sculptors and the force of the earlier ones; and next him the Queen of Sheba, a type of the Church, as she came from the ends of the earth to hear the wisdom of Solomon, and is therein a type of the Magi—she is standing on a slave. Judith, a type of the Virgin as deliverer of her people, standing on a dog—the emblem of fidelity. Above, in the voussours of the arch, are scenes from the story of Judith, and next her the story of Gideon who was a type of Christ, because “Tau”—T the Greek for 300—is the sign of the Cross, and so his victory represented Christ’s.

In the outside mouldings of the arch are the labours of the months and the signs of the Zodiac. April, a man holding ears of corn; October, a man knocking down acorns for pigs; January, a man with two heads, cutting bread with a bowl of wine on the table. These, though better executed, are much less vigorous and full of life than the corresponding earlier series on the west front; compare, for instance, the He-Goat.

But the most beautiful figure in the north porch, perhaps in the whole cathedral, is that on the north-western angle of St. Modesta, the daughter of the Governor Quirinus. She was converted by the martyr St. Potentian, who stands next her; she was martyred, as is shown on the pedestal, by being thrown into a well. The figure is one of exquisite grace and modesty, and the face touchingly sweet and maidenly.

Time would fail us if we attempted to pass in review all the sculpture of the great French cathedrals; but before passing on to Reims, the crown of them all, we must just glance at Amiens, which offers us the model of the perfect union of sculpture and architecture. The wonderful porches of Chartres are additions to the church; the scale is not always perfect. At Paris nearly all the statues are modern and there is some lack of richness, and at Reims there is overmuch. At Amiens the two are perfectly combined, and the statues are almost all as fine as possible in life and individual expression, which is rather lacking at Chartres, and perhaps a little too marked at Reims, and also in scale of the great statues of the kings of Judah in the gallery and of the prophets at the entrance. The colossal statues of the kings are perfectly adapted to their position—the heads are bold, detail is sacrificed to the general effect to be got from below, the eyes prominent and looking down, the detachment of the nostrils from the cheeks exaggerated; they would not look beautiful in a museum, they are perfect in their place. The opposite would have to be said of much modern work, and even of some of that of the Greeks. The details of the figures in the pediment of the Parthenon, such as those of the Fates, would have been hardly visible from below, and parts of the seated and lying figures would have been hidden by the cornice.

As we have seen at Chartres and Paris, the figure of Christ is on the central pier, above Him the Judgment, and on either side the Twelve Apostles. The great door of Amiens is the finest of all in the beauty of the figure of Christ, the nobility of the statues, and the spiritual beauty of their faces. Radiant with the light of the Holy Spirit, they gaze before them with profound serenity. At Chartres and at Reims some of the statues are poor works of art; at Amiens hardly one falls below the general level of excellence. On the right of Christ are: (1) St. Peter with the keys and Cross; (2) St. Andrew with a Latin Cross; (3) St. James the Great with a sword and the scallop shells of a pilgrim; (4) St. John holding the poisoned cup which Aristodemus gave him to drink; the next is probably St. Philip; then comes St. Bartholomew, who should be holding the knife with which he was flayed alive (the axe is modern).

On the left of Christ come—(1) St. Paul with a sword; (2) St. James the Less with a club; St. Thomas with a T-square; and the others must be Matthew, Jude and Simon, and beyond them prophets beginning with Ezekiel.

St. Thomas has a T-square because he is said to have

been an architect, and at Semur-en-Auxois we have his legend, which may serve us as a type of many of the mediæval legends. In the tympanum of the north door at Semur, beginning on the left, we see him—(1) Putting his hand into Christ's side; (2) The Provost of Gundorfus, King of India, meeting him in the market-place at Cesarea and engaging him to go to India to build his master a palace; (3) St. Thomas and a disciple going in a boat to India.

Line 2, from right, shows Thomas arriving during the wedding feast of the king's daughter, where a dancer is walking on her hands. St. Thomas has just cursed the king's cupbearer who tried to prevent his entering; so dogs had eaten him, and one is running in with his hand in his mouth. St. Thomas receives orders and money for the palace from the king, who is going off to war. He gives the money to two beggars, one on a stool, the other, a negro, holding a calabash. St. Thomas is put in prison, but escapes and tells the king, who is kneeling before him, that a more beautiful palace awaits him in heaven if he will be baptised.

These apocryphal legends are much commoner in the cathedral carvings than the true Bible stories; but they are sometimes mixed with them as at Rouen, where on the north door the death of John the Baptist is shown on the lintel and Salome is shown tumbling as at Semur. In the upper part disciples are shown gazing into an empty tomb, the story being that St. John the Evangelist had a grave dug in front of the altar, lay down in it, in a dazzling light, and when the light had faded the grave was filled with sweet smelling manna in place of the body of the Apostle.

But the most perfectly executed of these stories, whether true or imaginary, are to be found in Paris in the story of St. Stephen on the south door, and in that of St. Theodore.

There is also a wonderful set of panels (of about 1275) on the south side of Notre Dame which represent either the life of some unknown saint, or perhaps, though it is less likely, scenes from the turbulent life of the students of the University of Paris in the thirteenth century. If that is so, we have (1) the students quietly taking notes of a lecture; (2) standing round a professor, who is addressing them from a high dais; (3) probably a riot amongst the students; (4) the young men being hauled up by the Proctor before the Vice-Chancellor and taking an oath to behave themselves better in the future.

The plinth of Amiens is covered with quatrefoils, in which are the Virtues and Vices and the Labours of the Months, and in the other porches and on the buttresses where the statues represent the prophets a little scene is given from the book of each. Thus Ezekiel sits before a little wheel. They are pretty enough, but probably the sculptors had never read the books themselves.

(To be continued.)

### TOWN PLANNING INSTITUTE.

A GENERAL meeting of the Town Planning Institute was held on Friday evening last, October 6, at 92 Victoria Street, S.W., when Mr. J. W. Cockrill delivered his presidential address, and a vote of thanks was proposed by F. M. Elgood, F.R.I.B.A., F.S.I. (M.), and seconded by W. R. Davidge, F.S.I., A.M.Inst.C.E., A.R.I.B.A. (M.). There were present at the meeting: J. W. Cockrill (President), C. Hubbard, E. Willis, A. E. Collins, J. A. Webb, G. L. Pepler, E. R. Abbott, F. M. Elgood, G. W. Holmes, H. Jennings, T. W. A. Haywood, R. Unwin, Prof. S. D. Adshead, Prof. P. Abercrombie, L. D. Shattock, C. F. Wilse, H. R. Aldridge, H. V. Lanchester, W. R. Davidge, E. G. Culpin, H. Warren, J. A. Rosevear, Major C. P. Lovelock.

#### PRESIDENTIAL ADDRESS.

The unearned honour you have done me demands my thanks, but I feel that in placing me in this position you

are recognising the work of the municipal and county engineers, and on their behalf, as well as my own, allow me to express my gratitude.

My object in joining this institution was to gain knowledge and to extend my experience in the particular work it was formed to assist, and I would much rather consider myself a student of the professors around me than in any way try to give them a lesson in the work they have so ably carried out, and in which they have gained world-wide reputations.

The special work which this institute has been formed to advance is set out in its first publication, issued in June 1914, and is therein given as:—

(a) To advance the study of town planning, civic design and kindred subjects, and of the arts and sciences as applied to those subjects.

(b) To promote the artistic and scientific development of towns and cities.

(c) To secure the association and promote the general interest of those engaged or interested in the practice of town planning.

Midst two years of the most dreadful war the world has ever seen, this institution has steadily pursued its course on the lines laid down. A study of its Journal shows how varied and intricate are the problems which the men grappling with the subject must make themselves acquainted, and the institution is to be congratulated upon the very large amount of information which has been placed at the disposal of its members and the general public in the two volumes of the Journal already published. The papers read, discussed, and set out in them were so lately reviewed by your last president that nothing further can be said about them.

But for the strange hold which the war has had on the country and the financial straits which it has created, the progress of town planning would have been much more than it has, and all that the author of the Act could have wished. It is to be hoped that when the war has finished its course, the financial trouble may be overcome and that a large number of towns may avail themselves of the advantages which the adoption of the Act offers.

The housing question is becoming urgent, and in this connection it is very important that the proper lay-out of the sites should be secured. The landowner and his agents have not in the past proved themselves alive to the best interests of the work, and it will only be under powers given by the Act that any really important advance may be expected in the proper development of land on lines necessary for the healthy and artistic treatment of the surroundings of the home.

It is our duty not to forget the industry of other bodies, and, foremost, the pioneer work of the Royal Institute of British Architects. It tackled the subject boldly in the interest of its members, not fearing to create an adverse bank balance to provide the means for collecting a really valuable exhibition, perhaps the best which has been gathered together, and which is not likely to be equalled for years to come. The Congress then held, as represented by the Volume of Proceedings, is the greatest single contribution on the subject which has yet been issued. In other ways, by its committee and reports, it has done much to spread information on the subject.

The Institution of Municipal and County Engineers, from the date of the introduction of Mr. Burns' Bill, has taken an extremely lively interest in the subject, knowing that in the hands of its members, as officials to local authorities, would rest the responsibility of urging the adoption of the Act.

At its annual meeting commencing at West Bromwich in 1911 conferences of the local authorities and officials were instituted, at which papers were read and plans exhibited. Interesting and useful discussions took place, the value of which was enhanced by our first President, Mr. Thomas Adams, being deputed by the Local Government Board to attend.

The Surveyors' Institution is to be held in grateful remembrance as housing our library and giving our members the opportunity of studying in their building the

literature on the subject, much of which has been contributed by friends and which appears to be steadily growing. Its members are coming in for a share of the work necessary under the Act, and it is to be hoped that in the conduct of negotiations which are an inevitable part of the procedure they may give considerable assistance in furthering the true interests of the schemes.

In addition we have the Garden Cities and Town Planning Association giving practical examples of the lines on which dwellings can be erected, securing advantages and surroundings undreamed of a few years back. The National Housing and Town Planning Council are doing propaganda work, showing the need of the adoption of the Act and the benefits which will accrue therefrom.

The Garden City of Letchworth, Hampstead and other garden suburbs, the public utility and co-partnership societies, with philanthropists at Bourneville and Port Sunlight are all demonstrating that by the provision of well-built houses, with reasonably open surroundings, the health of the people benefits to an extent that is well worth paying for. It is to be hoped that employers of labour will assist throughout the country in the provision of proper homes for their workpeople, and that the working class themselves will soon realise that it is better for them to pay an additional rent than doctors' bills, and incur loss through times of avoidable sickness.

The London Society are to be congratulated on the result of their action in conjunction with the Royal Institute of British Architects with reference to the Charing Cross Bridge, so that Parliament itself has been induced to take such action as we may hope will lead to a grand improvement in a very important part of the Metropolis.

The London County Council has even given its blessing—in very guarded language, it is true—to the scheme under consideration for providing better facilities of communication round Greater London.

There are also schemes, such as the provision of a Southern Embankment of the Thames, the improvement of the centre of the city of Bradford, the Dundee improvement scheme, and the Dublin competition—which we must congratulate our honorary librarian in winning. Works which, if not assisted by the Act itself—the idea of a town plan is demanded by it—yet is in some measure responsible for them. A large number of local authorities are preparing plans for improvements to their old built-on areas in advance, which it is hoped will be carried out as opportunities occur of acquiring the needed property.

And then what is to be said of the way this work is developing in Britain beyond the sea? Australia, Canada, India, and New Zealand are all busy. Consider the splendid opportunities the men employed are getting, with plenty of space to work out problems of providing sites worthy of the civic centres and public buildings which will be a necessity as the townships develop.

But, above all, there is little doubt that the possibility of providing the homes of the people with every amenity which space alone can give will be fully utilised. In Europe it is to be hoped that with the wealth which neutral nations are accumulating they will pursue the path which some of them had commenced to tread in the direction of the provision of good housing accommodation and the amenities now considered a necessity. As to the unfortunate belligerents much will have to be done to restore and rebuild on proper lines the destroyed homes of the people of the invaded countries, and it is to be hoped that the traditions, customs, and material of each particular country will not be interfered with to an extent which will result in the loss of the charm which has been given to travel in these countries. The United States have for some time taken up the subject with their usual keenness and energy, and whatever the work actually done may be, the literature with which they are supplying us is of a high character and a contribution to be thankful for.

The ever-swelling tide of literature in articles or volumes dealing with every detail and phase of the subject

of town planning is an augury of the brightest kind, and proves that there is an increasing demand for knowledge in this matter.

The foregoing review of the conditions may appear optimistic, but having been written by one of a hopeful turn of mind it may be coloured with his particular way of thinking. In any circumstance this institution has every right to look forward hopefully to a career of usefulness which will fulfil the promises of the inaugural meeting of rather more than two years ago.

In his address then given, the Right Hon. John Burns said: "We have 70,000 representatives on the larger local authorities in England and Wales. By some process of education and organisation for which the Town Planning Institute ought to be primarily responsible, we ought to develop their public spirit and improve their artistic instincts."

This institution was therefore charged by the author of the Act with important duties which they have struggled in the past two years to fulfil. With an increasing membership and growing importance it is not too much to promise on behalf of its members that these attempts will not be relaxed. How to proceed is a matter requiring great consideration. The best way to reach the 70,000 representatives named by Mr. Burns who can do most to help forward the work is by conferences to which these members of the local authorities and their officials shall be invited. Those held by the Royal Institute of British Architects, the Municipal and County Engineers, the Housing and Town Planning Council, and the Liverpool Town Planning and Housing Exhibition in March 1914 are examples of the best endeavours to spread a knowledge of the subject in quarters where it is likely to be of use.

There may be disappointment that in the seven years since the passing of the Act only 160 schemes are in various stages of progress, and that of these only six are complete. These numbers would have been very considerably increased but for the war, which throughout the country has depleted the official staffs so much that ordinary routine work cannot be carried out. Work considered as not immediately necessary has had to be deferred, especially as in the negotiations with the owners the officials find that no steps will be taken while the war lasts.

The need for providing dwellings is known to be very urgent throughout the country. It may also be expected that employment will have to be provided for men returning to their usual occupations either from the fighting-line or from munition works after the war has ceased. The local authorities who are not prepared with schemes for housing and town planning will find themselves at a disadvantage. It is only reasonable to suppose that the Local Government Board will require that all plans submitted to them for the purpose of obtaining sanctions for loans or grants, in the event of any such being available, shall strictly comply with the best conditions, and that the lay-out of their sites shall not in any way contravene any scheme of town planning, and if no scheme is in progress that the development of the district on correct lines shall not be impeded by any proposal. It might be even advisable that the local authority should be compelled to provide a preliminary plan which would show how developments in the district are likely to be affected by the work for which the sanction or loan is asked.

If this is done it may be assumed that we shall avoid the mistakes and dreadful examples of the last century, by which the English workman's house, while being his castle, in that he has had a separate dwelling, has resulted in his living in the dreariest groups of residences to be found. By-laws before 1880 permitted almost any number of houses up to a hundred per acre, including roads and passages; the packing is then so dense that one does not know if the planning is of the chessboard pattern or any other system. The much-maligned by-laws of the model type, whatever may be said about them, have done much to secure to each house some breathing space in wider



roads and backways. That the breathing space was in straight lines and right angles is the fault of the person developing the land with only the idea of getting the largest number of buildings on an acre, with the smallest number of bricks and in such a way that the buildings would hold each other up, and give the builders a chance of making a profit. Aesthetic conditions cannot be secured by by-laws, and there may be even difficulties under town planning powers, but something might surely be done in securing the air space about the house if by-laws were permitted to be prepared allowing a reduced standard of construction and width in new streets where houses did not exceed a certain number per acre. Provisions could be made by which the front lines of the houses could be kept a minimum distance apart, say 80 feet, and if the same distance apart were allowed between the backs of the houses it will be found that the number would work out at twenty per acre, which is considered too large by the best authorities. Limiting the number of houses in a group or terrace by reasonable restrictions as to the distance between each group of houses will result in about sixteen houses per acre.

Concessions in road-making could then be reduced to provide only such a standard of width and heaviness of metalling to the carriage way as would be necessary to provide a proper approach to the dwelling-houses if no through traffic was developed by the construction of the road. In cases where heavy through traffic might afterwards be developed requiring a greater standard of width and heavier metalling the local authority to have the right of taking the ground free whenever they determine to carry out the work involved in such widening and heavier metalling. The way to secure better homes for the people seems to be to create discontent by educating them to expect a very different class of house to the badly planned, inconvenient, and generally badly built house now arranged as square boxes in rows of indefinite length and uniform to the door knocker.

In this connection Mr. Mulford Robinson in his "City Planning" quotes from Mr. Charles Booth the following passage:—

I wish I could rouse in the minds of speculative builders a sense of the money value that lies in individuality, with its power of attracting the eye, rooting the affections and arousing pride in house and home. Then would they seek to use, in place of sedulously destroying, every natural feature of beauty, and take thought of others; a slightly greater width of garden on the sunny side, whether front or back, may make all the difference; a single tree left standing can glorify a whole street. Fresh painting and papering within is not the highest ideal; its charm passes; the other gathers force as the years go by.

And Mr. Robinson completes an extremely interesting chapter with the following:—

It is with that spirit that the planning of tracts for humble homes must be undertaken. There must be the freedom from restraint that was craved in the planning of the high-class minor streets, not symmetry and exactness; but the best practical housing of the poor, the brightening of their lives, and the fostering of the home spirit should be the aim.

If we succeed in this, substituting these gifts for dark courts and dreary streets, where there is not sufficient light and air for the health of body or spirit, we may expect that more grandiose town planning projects will grow easily out of the new-born civic spirit.

The objects set forth so ably by Mr. Booth and Mr. Robinson are obtainable under town planning powers by a wise lay-out of the area which, while conserving and improving the existing ways, will lay down new roads, streets, or boulevards in such directions that the aspect of the homes to be built on them shall be the best obtainable. Laying hold of any existing beauty spot or piece of vegetation, from a few blades of grass and a gerse bush to a noble tree with a century's growth and incorporating them in the lay-out, will certainly increase the value of a site.

The appeal to the speculative builder, it is to be hoped, will have its effect. It should be possible to demonstrate

to him that a little variety in planning would be in his interest, and that in this way he may continue to provide some, if not all the homes of the people. It is certain that many of the local authorities will not undertake the work unless under compulsion. The "economic rent" question will be an endless bone of contention, and nothing should be done to prevent the speculative builder coming to do his part under proper control, not by too repressive by-laws but by well-considered reasonable clauses in the schemes.

The influence a garden of only medium dimensions will have on the minds of children may be gathered in a piece of word-painting by Ruskin in his "Fors Clavigera, Letter LIV," years after he had left the house and when he was a man of 55. He gives a vivid description of the view to be obtained; but as few houses have the view which can, or could, be seen from Denmark Hill it is not repeated. In the good times coming it is to be hoped there will be hundreds and thousands of houses, a fair proportion of which shall be occupied by the working classes having as large a site, and with well-directed care will rival the garden described by Ruskin:—

It had front and back garden in sufficient proportion to its size; the front richly set with old evergreens and well-grown lilac and laburnum; the back seventy yards long by twenty wide, renowned over all the hill for its pears and apples, which had been chosen with extreme care by our predecessor—and possessing also a strong old mulberry tree, a tall white heart cherry tree, a black Kentish one, and an almost unbroken hedge all round, of alternate gooseberry and currant bush; decked in due season with magical splendour of abundant fruit; fresh green soft amber, and rough-bristled crimson bending the spinous branches; clustered pearl and pendant ruby joyfully discoverable under the large leaves that looked like vine.

The difference of primal importance which I observed between the nature of this garden and that of Eden, as I had imagined it, were that in this one *all* the fruit was forbidden, and there were no companionable beasts; in other respects the little domain answered every purpose of Paradise to me.

The chances of long and useful life of children brought up in such surroundings will be infinitely greater than can be the case now, where, if they survive the dangers of the streets in which they have to take their recreation, the want of breathing space around their dwellings must restrict the chances of proper development and tend to shorten life.

Here, surely, the architect and artist will get their chance as people are educated up to require a better standard and a craving is engendered for something of a distinctive character, involving the architect not only in the design of the house but in the supervision. At the present time the proportion of houses designed and supervised by architects is very small; in one case recently reaching two out of three hundred houses completed in one year in a district, and the average is probably about 5 per cent. To get this altered will be for the good of the occupiers and the ultimate purchasers.

Something should be done in rural districts to prevent terraces of town houses being planted up to or within a few feet of country roads, where to prevent the inconvenience of the scorching motor dust the house should be at least 50 feet back.

Some writer lately has attributed the awful sameness and untidiness existing in our towns, with much of their apparent unfinished condition, to the establishment of the railways, an example being given where the division wall of a house existed in the same condition as it was left in by the pulling down of the adjoining house for the construction of the railway sixty years before.

One thing is certain, that much of the bad work and overcrowding which has been done and which will have to be removed is contemporaneous with the railways. A study of the map made 100 years ago of any town which has developed, compared with the latest Ordnance Survey, will show a large number of houses which, at the date of the earlier map, had considerable gardens and open spaces inside their curtilage that these open spaces

have now been covered with buildings. Even if this can be attributed to the railways, much sympathy will be extended to the unfortunate shareholders, whose property is decreasing at an alarmingly rapid rate. In hundreds of cases goods and passengers are being conveyed in less time, and at a cheaper rate direct to their destination, than they can be by the railways.

This condition of things is likely to develop at an ever-increasing rate. Road improvements, which will be carried in truer lines and better construction, giving smooth dustless surfaces of sufficient width, are now possible under town planning powers, and if not undertaken by the local authorities will, it is to be hoped, be placed in the hands of some central authority such as the Road Board, which, if provided with the means, will make a journey through England more pleasant even than in coaching days.

In pre-war times delay in taking up schemes was often caused by exaggerated ideas of the cost of the work or the large amount of labour taken in the preparation. To some extent these objections have been removed by the amended procedure regulations issued in February 1914. In addition the authorities with schemes in hand are proving, and the fact is generally becoming known, that the work is not so costly or difficult as at first supposed. The schemes which have been prepared are not landing their promoters into the payment of large sums for compensation, and this, combined with the fact that there is a possibility of betterment being claimable where costs of works are incurred, is quite an inducement to authorities to proceed with the schemes.

The compulsory clauses in Part I. of the Act, which placed on the authorities responsibilities that, when properly administered, became costly items of expenditure to the owners of the property, brought the Act generally into disrepute and militated against the adoption of Town Planning Clauses in Part II.

(To be continued.)

### THE ARCHITECT AND THE PUBLIC.\*

By WILLIAM L. STEELE, President of the Iowa Chapter of the American Institute of Architects.

It is a common expression that the people get what they pay for. It is a saying, also, that the people love to be humbugged. It is at least a fact that the people are often humbugged and misled by those to whom they look for guidance, by those who teach, by those who preach. It is said of old, "Beware of false prophets, who come to you in sheep's clothing, but inwardly they are ravening wolves." When the people go to a false prophet and pay him for his false prophecies, are they indulging their love of being humbugged, and therefore getting what they pay for, or is it true that both of our old saws are really false—spurious money minted by the father of lies?

I believe that no one in his right senses likes to be deceived. Granted that this is so, we touch another bromide button, and the first suggestion is usually "There ought to be a law to prevent it."

At every assembly or legislature in every state in this great Union of ours, a multitude of laws are enacted at every session. The legal precedents are no sooner established by the courts for one set of laws when the next batch upsets them. It makes it interesting all the time for the legal profession. I heard a prominent Pennsylvania attorney once say when asked about a point at law, "I do not know. Our last legislature passed some new laws which will have to be tested out in the courts before we can say with any degree of certainty how we stand in this matter." And he took up a bound volume containing the laws passed by the said last legislature, patted it on the cover, and said "Our legal joke-book!" That was almost twenty years ago, and the same thing has been going on ever since.

\* An address before the Illinois Society of Architects, and published in the Journal of American Institute of Architects.

The great American people are almost always the supposed beneficiaries of every law that is passed. The "public welfare," "public health," "public safety," "public interest," are all shibboleths of well-worn but tough fibre. It would seem that the people ought to know what is good for them in a democracy such as ours, but we find them strangely indifferent as a rule. They are too busy trying to earn their daily bread to bother their heads much about what goes on in legislature or in court, and so some say that democracy has failed. Others that it has not failed but must have its checks and balances, and the self-chosen ones must go ahead and run things. Out of courtesy and respect for the good old Constitution, the dear people are still to be allowed to walk up to the ballot-box and confirm our previously outlined schemes, and ratify the preliminary wire-pulling.

In an ideal democratic condition the people as a whole ought to be found dictating the terms under which any business or profession or vocation or means of earning a livelihood should be undertaken and carried on. Considering the actual conditions and not theories, we find at once that this is not so.

There is a mistaken feeling of too much respect in the average mind for the mind of exceptional brain-power.

The professional walks of life are held to be beyond the ken of ordinary mortals. So that the result is that when a profession waxes strong and powerful it can get just about as much legislation for itself as it wants. If a profession is not so strong, or indeed if it be in the "twilight zone" and of a nature which, to the average mind, is not "professional" at all, it is "up against it" if its members want to exert influence in legislative halls.

Let us face the facts fairly. Most of us are agreed that the practice of architecture should be regulated, to some extent at least, by law. It is so regulated in some of our states—in most of the states not at all. What are our motives?

The claim is made that the public safety demands it. That the incompetent should be prevented from practising architecture because they will design buildings that are unsafe, unsanitary, unscientific. The claim is made that lawyers and doctors have to be licensed, and that architects also should be so licensed as members of an equally elevated and honourable profession. The claim is made that there is the same need of licensing architects as there is need of licensing lawyers and doctors.

In Illinois the architects have their law, and I think they have proved that its existence has been beneficial not only to the public but to themselves. Is it not true that the value of such legislation is of great direct benefit to the members of the profession or calling affected? Is it not true that these members so affected are expected to prove by their way of doing their work that their chief motive was not their own self-advancement? Are they not expected also to prove that their interest in the protection of the public was not secondary?

The great engineering fraternity has pitched upon the state of Illinois as a strategic point in which to obtain similar privileges for itself. Its members also are burning with zeal to protect the dear people. As a profession they are doing the big things in constructive work to-day. They are damming the Mississippi at Keokuk, harnessing Niagara Falls, breaking through the Continental Divide to let the Atlantic and the Pacific flow together. They are designing automobiles, submarines, aeroplanes. They are reorganising factories, appraising railroads, putting any kind of a "going concern" on an "efficiency" basis. Nothing is too large for them or too small. They are designing buildings. Their estimates of cost work out. They are great on details, steel, reinforcing, elevators, conveyors, refrigeration, heat, light, power! We cannot do without them.

And how, pray tell me, can the architect hold the position, if he ever really had it, of being the recognised generalissimo and high-cockalorum of everything that

pertains to building unless he can get a strangle hold on every legislature in every State, and teach these upstart engineers to know their place?

Most of us, I take it, are graduates from one or another of our colleges of architecture, God bless them! But nearly all of them were, and still are, mere appendages to a greater and far more puissant college of engineering. Is there not a screw loose here? How well we remember the lordly air with which our engineering fellow-students discussed the mysteries of calculus in our presence. How much they enjoyed the imputation that we of the architectural bar-sinister had elected our course because it was easier than theirs. How well we remember the way the "Fine Arts" were tagged and set aside and feminised! How little we understood—do we yet understand?—that art is the breath of life. How can we have architecture unless there be architects to breathe into construction a living soul? How can the wonderful creative faculty, which ought to be the birthright of every architect, be taught in any school which is a mere subscript to the great Behemoth of modern commercialised engineering?

I do not want to be misunderstood. I do believe that, whether the public knows it or not, the practice of architecture and the practice of engineering are both professional, and both ought to be regulated by law. I have come to believe that such regulation is bound to be more or less ineffectual unless the standards of building practice are fixed by a uniform building code. You can test a man's ability, but you have to follow him up in a direct and unevadable way.

"By their fruits shall ye know them," and that means in this case that if you have a code and honest competent inspection you can tell at once whether the designer of a building knows his business or not.

As to the supremacy of the great profession of architecture as compared with law or medicine or engineering. I would not be concerned save in one way. The architect will never be supreme by law. He must have the appreciation of the great dignity of his calling. He must have the deepest sense of realisation of the responsibility that attaches to it. He must labour "in season and out of season" to make himself more capable, more worthy, more serviceable. He must sit at the feet of the heroes and learn "not hero-worship, but what the heroes themselves worshipped." He must become great, not as the sleek beneficiary of special privilege, but as the worker spending himself in service and the last limit of service. He must be free from any taint of selfishness or graft or dishonesty or bluffing or brain-sucking. If he does not want to be exposed as a hollow sham in public places let him beware how he lets a big heating firm's engineer figure out his radiation for him—gratis, or a big steel mill's engineer figure out his construction for him—gratis, or any other kind of a specialist do anything for him—gratis! Let him gladly, in the bigness of admitting that he can't know everything, make use of any and every kind of specialist that walks; but, in God's name, let him pay for it. We hold that the owner should pay for special services of this kind, but how often does he? I maintain that if an architect is employed, and paid his fee to see that all these things are done properly, the architect ought to pay for the information he himself does not have. Only so can we hold our ground against the "specialists" who now, grown tired of playing their little second fiddles, are invading the architect's territory and taking entire commissions to execute.

How else would it be possible for a man formerly on the pay-roll of a bank-vault concern to go out as a bank engineer, and get commissions to design and build not only a vault, but the building that is to receive the vault and its fitments down to the forty-nine brass cuspidors? How is the public going to judge? How can you stop it by law if the fellow is smart enough to

pass his examination? We must educate the people. Ah, yes! my friends, in the last analysis there is only one way, and that is the long, hard, and weary way of practising what we preach.

A certain man used to be employed as a draughtsman in quite a prominent office in Chicago. He is now a specialist and a breezy writer for the various architectural and near-architectural journals. He is considered a sort of guide-post by some people in all matters architectural. He loves to tell the public how incompetent is the average practising architect. He advertises by letter to architects and owners—with this difference. To the architect he says: "Why hire draughtsmen? Send me your rough sketches and I, with my corps of trained experts, will get up the drawings and specifications for you. Or, if you haven't any need of such exalted services, let me at least make your perspectives." To the owner he says: "Your architect is probably well enough in his way, but he needs guidance. Let me be your consultant to check the other fellow up so that you may be sure he is right before you get stung."

To make the following instance clear, let me call this man Pecksniff. I was sent a sample copy the other day of an architectural magazine published in a far part of the world. It contained a very good article by Pecksniff on some of the inconsistencies of traditional methods of design, and as an illustration there was a picture entitled "A City Hall in U.S.A., designed by Pecksniff." A day or two later I received from Pecksniff a letter containing his advertising matter. Among the half-tones enclosed therein was this same picture, but at the bottom was reproduced the name of a firm of architects in one of our principal cities! The inference was that these misguided gentlemen had employed Pecksniff to make this perspective for them. He evidently thought well enough of it to appropriate it as his own for his far-away article. It is possible that he would say, "These pseudo-architects employed me to design it for them." But even so, to what depths of professional indecency are we come when we contemplate a mess like that!

There is a question that at once occurs to the practical man who is worn to a frazzle finding ways and means for keeping his establishment going during a period of hard times, and that is the relation of the architect's compensation to his standards of practice. I was very much impressed by the papers presented to the American Association of Engineers here in Chicago by Professor F. H. Newell, of the University of Illinois. He says:—

"What do we mean when we claim that the highest function of the engineer and his greatest reward are found in effective service? The word conveys the idea of help rendered to another, not as a favour involving an obligation nor, on the other hand, as a matter of self-sacrifice. It is something that may be expected though it cannot be demanded, and may be performed among equals. Service consists of those acts that tend to lessen trouble or increase the health, prosperity, and convenience of others.

"Engineers, in performing service, are by this very fact entitled to full recognition. Service implies a suitable reward; and, while the effort may be altruistic, it does not involve unnecessary self-denial. A proper remuneration—one assuring a good living—is due to the engineer. He that performs service rightfully does it with full expectation of reward, directly or indirectly, in the satisfaction of duty well done."

This applies, word for word, to the architect, and the public is going to judge our worthiness of a proper remuneration, first, by our own self-respect and our own estimate of the worth of our services; and, second, by our fulfilment of our professional obligations, by the comparison of our service rendered with our service promised.

I do not favour "unionesque" methods of enforcing an established fee, but I see no hope for the future of



architectural practice unless we succeed in educating ourselves to the full knowledge of what our proper service to the public ought to be, and what it costs to render such service. In the light of such knowledge we would be able to say "No!" when opportunity presents itself for getting a commission away from some brother architect by price-cutting. Price-cutting inevitably results in lowered standards of practice, and very, very often in dishonest methods of practice.

Professor Newell makes a strong appeal for the widening of the field of practice. It is equally true in the practice of architecture that the architect should be "a man of vision—a missionary of light and progress." It is equally true that in his work the architect is far ahead of the public. He has not taken the public into his confidence and explained in simple terms, in ways that would attract the public, the results already achieved. The city-planning movement is a great field for the architect, and the engineers are seizing the opportunity and are now on the way toward occupying by far the most commanding place in the public vision where any matter of civic improvement is concerned.

Professor Newell points out the problem resulting from the new men who come into the professions each year from the schools. His optimistic belief is, and I think it is the true one, that "the overcrowding is more apparent than real. A relief is to be obtained not by limiting the influx of men, but rather by widening the field of service." I believe we should welcome into the practice of architecture every young man who has the necessary equipment and the proper ideals. But I think we should be in a position to say to the schools: "You must not expect us to make room for half-baked, immature, young smart-alecks. You must not expect us to find a place for the typical graduate as he comes forth to-day with only a four years' veneer of architectural odds and ends covering his lack of ideals, his starved and all but dead imagination." We ought to know what is going on in the schools. We ought to help sustain the child as he passes from the primary grades into the high school, and see to it that his means of self-expression are cultivated and not suppressed. We cannot blame the architectural schools when we come to realise how little real material they have with which to work. Let the public be taught how well worth while it would be to improve the training of its special students. At present the public is satisfied if its local high school is on the accredited list of a respectable number of colleges and universities. It does not seem to occur to check up the graduates of the high school and see how many of them ever amount to anything.

As to the appreciation of the value of architecture by the public, I think again with Professor Newell that there is a certain salesmanship which the architect as well as the engineer should cultivate. I will quote from his paper:—

"We recognise that the success of many a merchant is due to a peculiar art that he has acquired, and one that enables him to sell goods at a profit. We have more slowly come to recognise the fact that his success is due, not to the fact that he personally makes a profit, but that the other party, the world to whom he sells, is benefited. For a time a merchant may sell inferior goods and make money, but an established business can rest secure only on honest advertising and on the realisation by the public that he is performing a real service to mankind. In the same way the engineer, to succeed, must acquire the art of salesmanship. He may not recognise or label the quality, and may even deny its existence. He may point to a code of ethics rigidly observed against advertising, or self-exploitation, and yet he may possess to a high degree the real art of presenting his ware in such a way as to convince the world that its general welfare is promoted by purchasing from him."

Lest it may seem that this is all foreign to my sub-

ject, let me urge that the public is and ought to be concerned in all manifestations of architecture "as she is practised." Let me urge that while laws are needed, that what is still more needful is that the ancient fire of genuine love for humanity and love of labour be kept burning. For say what we please, Art is the flame that flickers above this sacred fire. Any other fuel will produce only smoke. I make confession to you of a deep and abiding faith that whether we as individuals prosper or fail, whether we survive or perish, this beloved country of ours will bring forth an architecture that will live and endure long after our law books have mouldered away. I confess to you my belief that if we are to have a creditable share in that most enduring of all records of a nation's life, we must be architects to the uttermost stretch of every fibre that is in us. We must endeavour to interpret the spirit of our age and people, not as geniuses, not as originators, not as copyists, not as romanticists, not as mystics, not as academicians, but as *men*—sincere in every self-expression, loving truth and that most dear goddess, our liberty.

### SECONDARY SCHOOLS BUILDING REGULATIONS.

A COMMITTEE of the Essex Education Committee has recently considered suggested modifications of the Board of Education Building Regulations for Secondary Schools, and it has been decided to submit to the Board of Education the suggestions set out hereto, with a view to a reduction in the cost of buildings to be erected in the future.

#### REPORT WITH REFERENCE TO THE SUGGESTED MODIFICATIONS OF BOARD OF EDUCATION BUILDING REGULATIONS FOR SECONDARY SCHOOLS.

Your Committee have considered the suggestions which the Head Teachers of Secondary Schools in the county have submitted at the Conference held on June 1, 1916, and in deference to the Head Teachers' views, have made some slight alterations in the original proposals.

Your Committee now recommend that the following modifications in the Board's Regulations are desirable:—

1. *Entrances*.—That in most cases two entrances are sufficient. Generally the central entrance might be dispensed with.

2. *Assembly Halls*.—(a) That the hall be of the size necessary for school purposes only; and that, for accommodation up to 300 pupils, the area should be not less than six square feet per pupil, but that, for any number of pupils in excess of 300, the area per pupil may be reduced. (b) That, as a general rule, the Assembly Hall serve as a Gymnasium, but not to be used as a corridor.

3. *Art Room*.—That the minimum dimensions be reduced to 25 sq. ft. instead of 30 sq. ft. per student.

4. *Classrooms*.—(a) That the minimum height be 10 ft. 6 in., and the superficial area 13.84 sq. ft., instead of 12 ft. and 16 sq. ft. respectively. Your Committee also suggest that the Board of Education should be asked to investigate the question whether, in practice, there is any disadvantage in having well-ventilated classrooms of 10 ft., 10 ft. 6 in., or 11 ft. in height. (b) That desks be single, but that they be arranged in pairs if necessary.

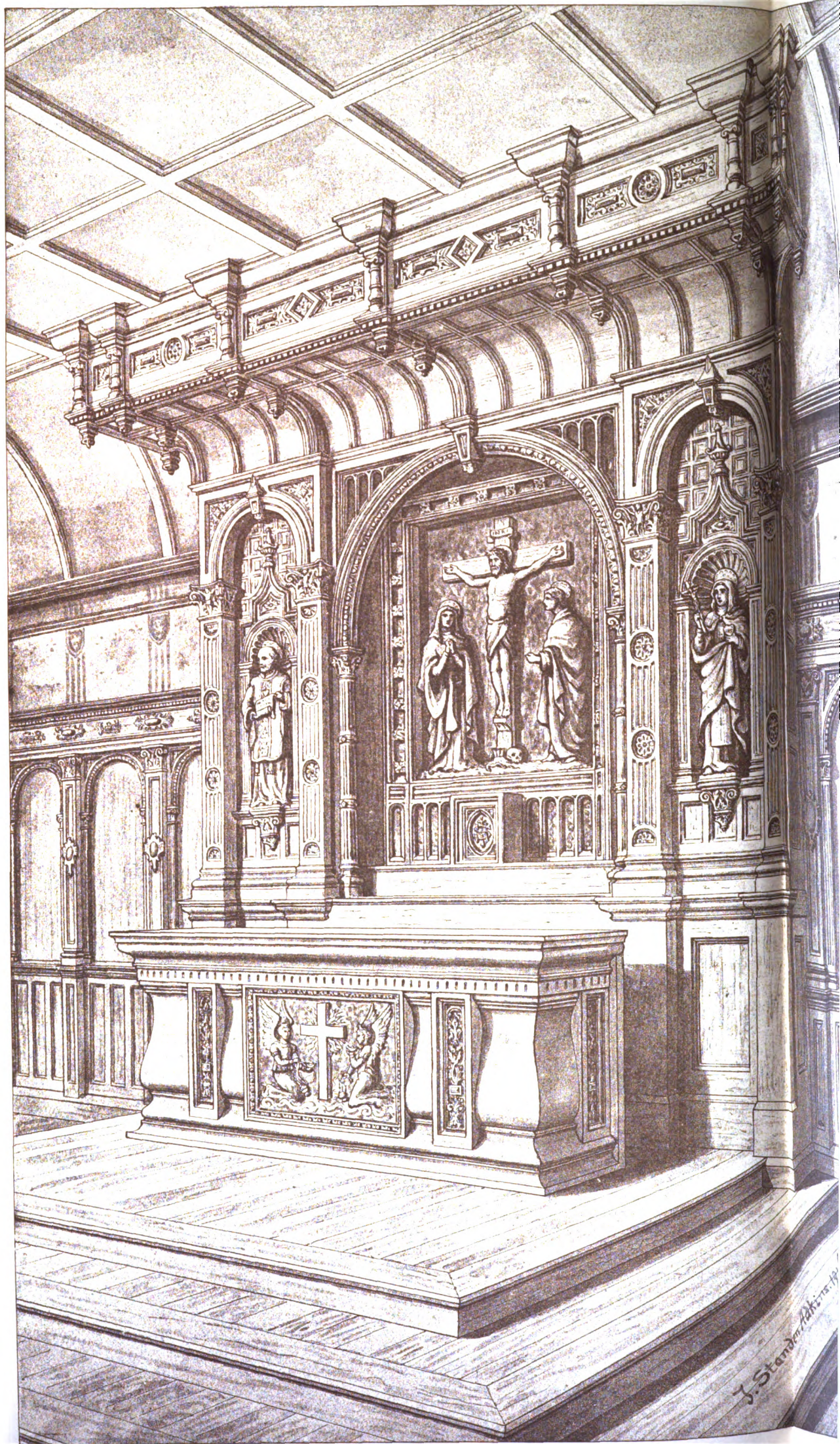
5. *Laboratories*.—(a) Boys' Schools. That, where numbers allow, one laboratory, fitted for use as a Lecture Room as well, serve for both Chemistry and Physics. (b) Girls' Schools. That one room serve both for Botany and Dressmaking (cutting out). (c) Area. That the minimum be reduced from 30 sq. ft. to 28 sq. ft. per place, subject to the architect preparing a satisfactory plan.

6. *Housecraft Room*.—(a) That the Cookery Room be used as School Kitchen, the size to be increased if necessary for that purpose. (b) That an appreciable reduction be made in the floor space of the Housecraft Room. Present requirements 30 sq. ft.

7. *Handicraft Room*.—That the room be built on workshop lines and not be elaborately finished.



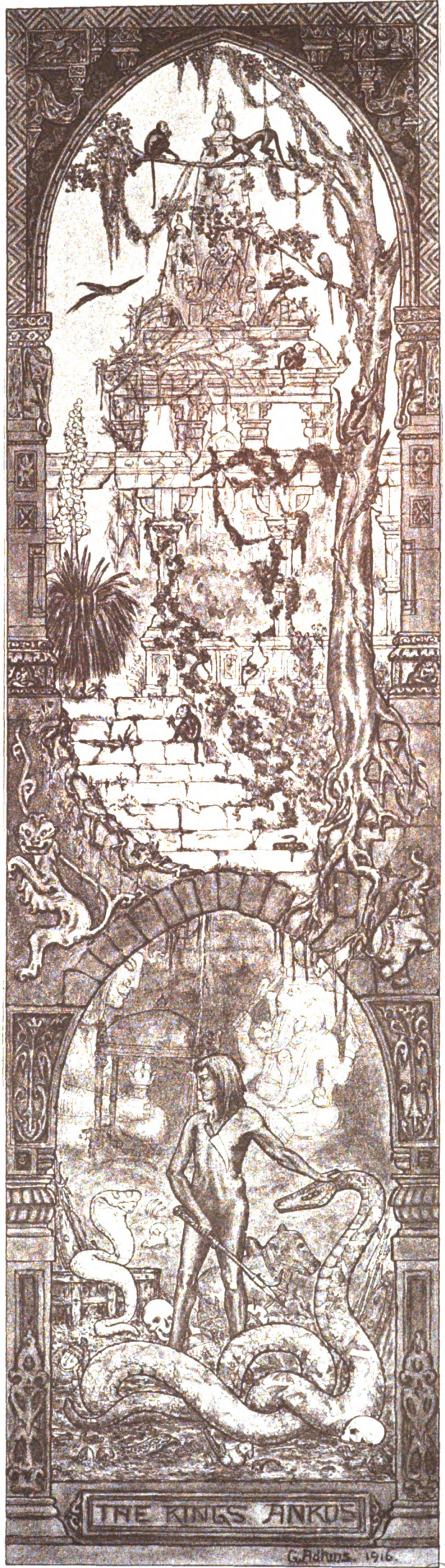




REREDOS: CHAPEL OF THE HOLY CROSS, LIMPSFIELD.

MR. J. STANDEN ADKINS, Architect



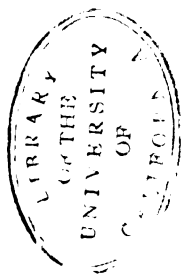


THE KING'S ANKUS

G. Adkins 1916

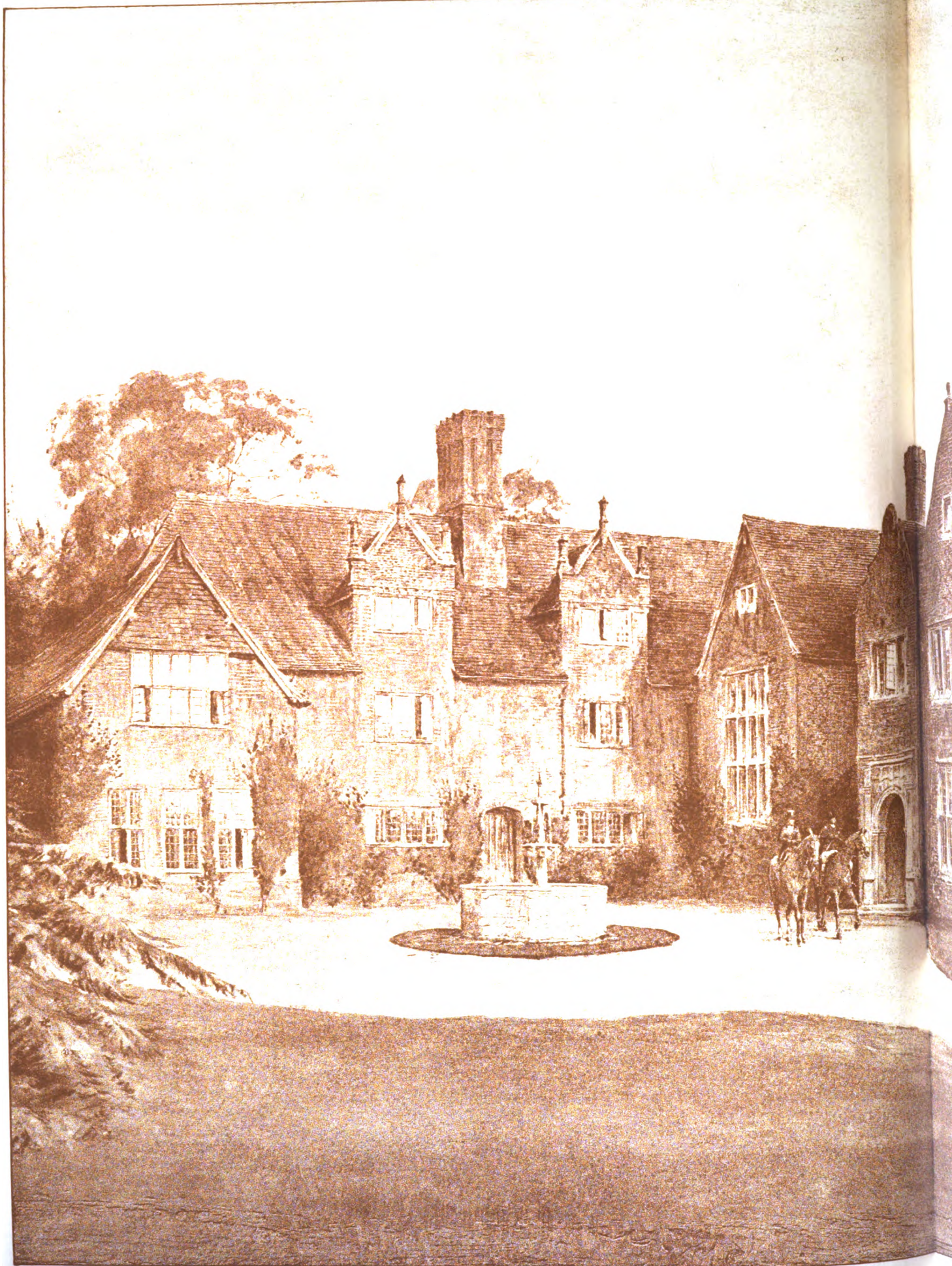
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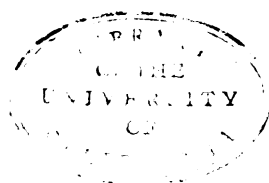
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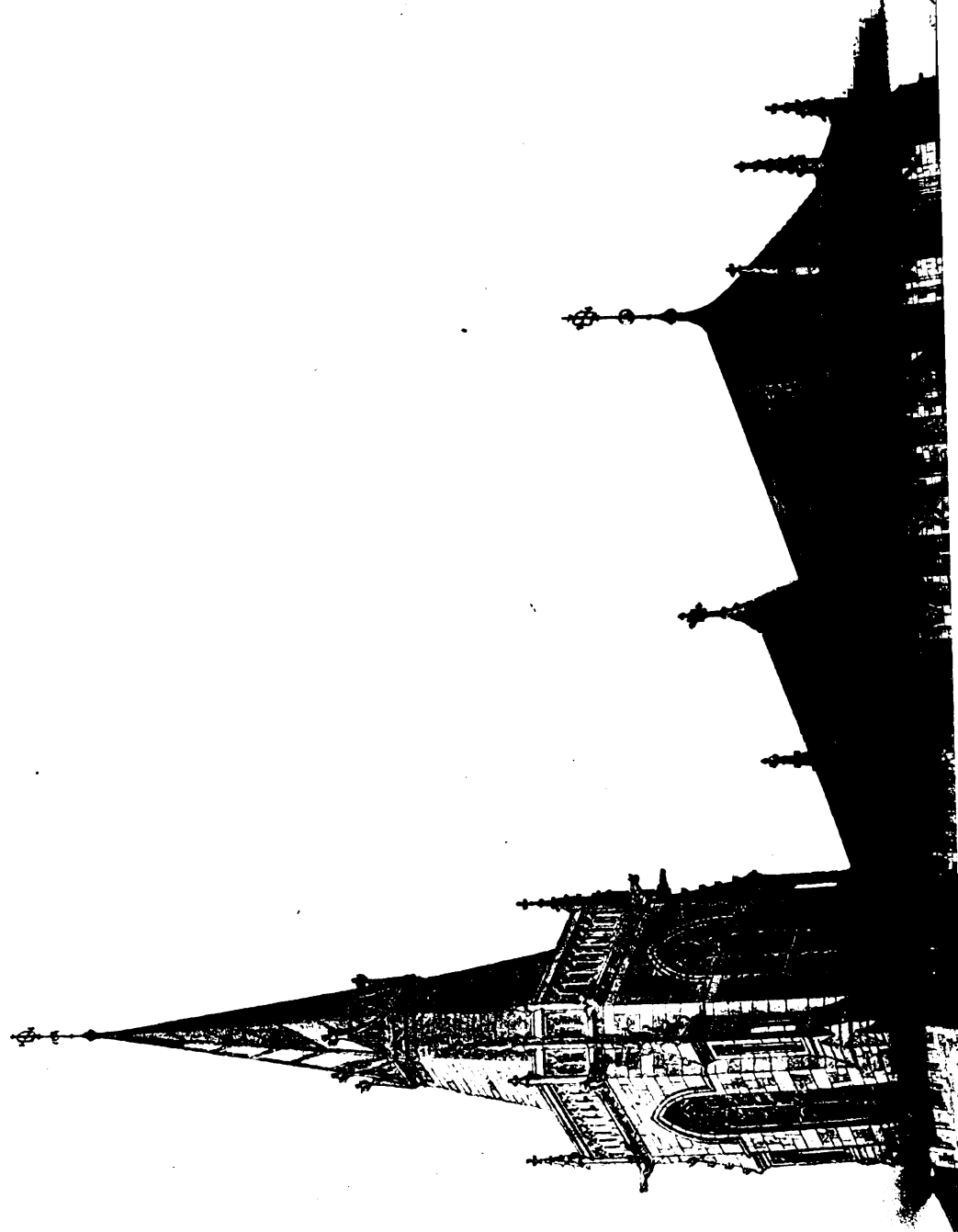




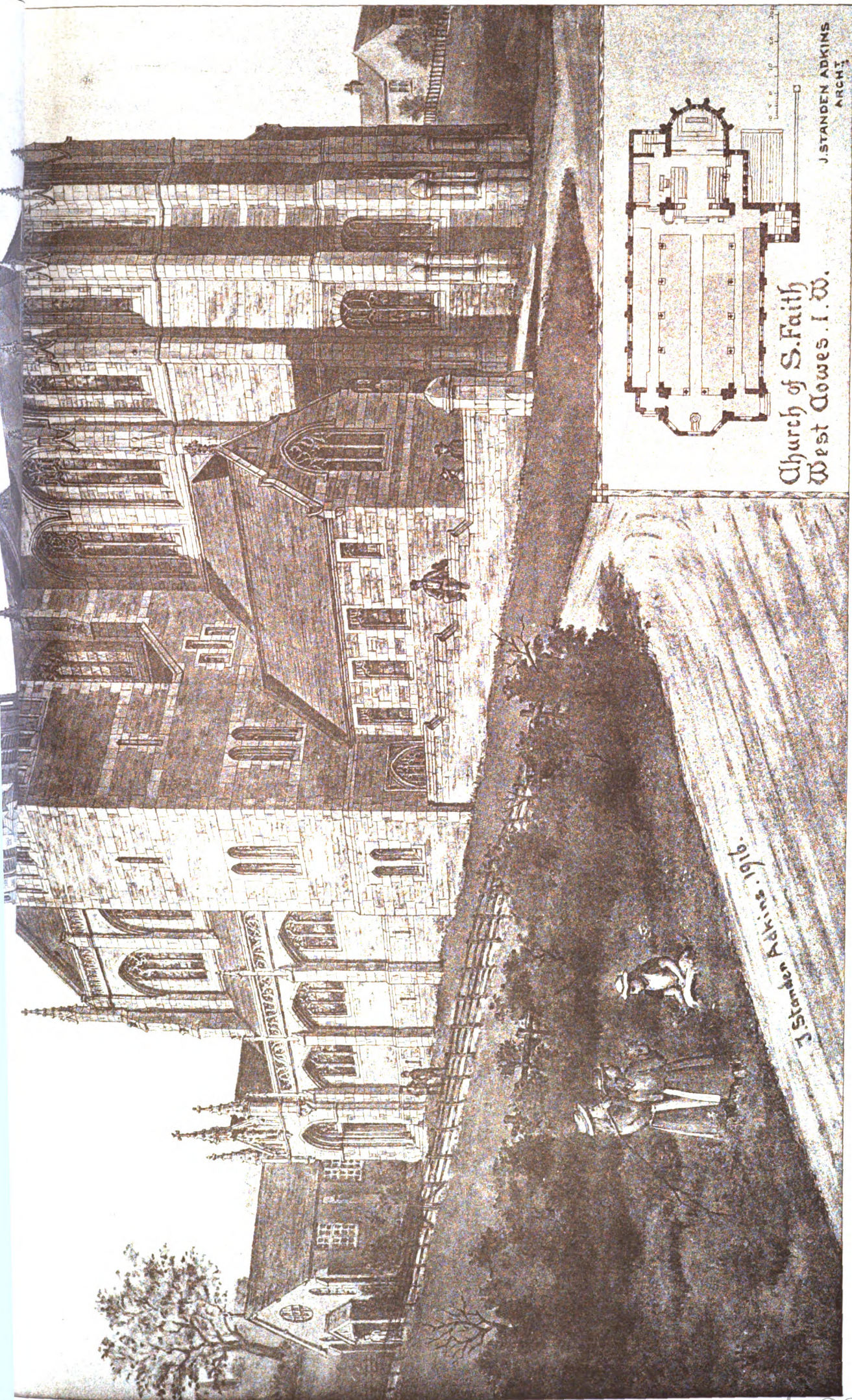




The Architect, Oct. 13th 1916.







Church of St. Faith  
West Cowes. I.W.

J. STANDEN ADKINS  
ARCHT.

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J. Standen Adkins. 1916.





8. *Corridors*.—That the minimum width be 5 ft. 6 in., but this might be reduced to 5 ft. in the case of little-used passages.

9. *Windows*.—That dormer windows be avoided as far as possible.

10. *Gas Meters*.—That the desirability of fitting governing gas meters should be considered by the architect in the case of each school.

### THE ATELIER IN WAR TIME.

In order to deal more effectively with the conditions caused by the war it has been decided to make certain modifications of the present working arrangements of the Atelier without, however, affecting the principles involved.

The Atelier will be open all day as before, and projects will be set from time to time. A special feature will be made of two evenings a week, Wednesday and Friday, when members will be assured of meeting their colleagues.

Wednesday evenings will be devoted to sketch designs, and occasionally to the discussion of subjects in which members may be interested.

Friday evenings will be occupied with the life class. Members and subscribers are eligible for election to the life class on payment of their share of the expense of the model.

The subscriptions will be as follows:—

For 10s. per month, paid monthly in advance, the subscriber may use the Atelier at any time for working the projects or for any other architectural work which he may desire to undertake.

For 10s. 6d. per half-year, to be paid in advance, or 1s. for each attendance, to be paid at the time, the subscriber may attend on Wednesday evenings.

The above arrangements are tentative and are subject to alteration at any time by the committee.

There is great scope for increasing the membership of the Atelier, and the facilities for work can be extended in proportion to the number of members attending.

The hearty and active support of all concerned is asked in maintaining the traditions and continuity of the Atelier during the war.

### ART IN LONDON.

#### MR. C. R. NEVINSON'S WAR IMPRESSIONS.

IMPRESSIONS is, indeed, the fitting word for these sketches. But, with few exceptions, we should not wish them to be our own impressions; or, at any rate, we should not desire so to express them. The older forms of art, too, had the merit of not requiring explanatory preface or introduction; they introduced themselves most effectively. And we fear that that gallant soldier, General Sir Ian Hamilton, does but help to give the show away in his introductory remarks to Mr. Nevinson's exhibits at the Leicester Galleries.

Dynamism and simultaneity are all very well, but art has of necessity its limitations. The old saying, "Ars est celare artem," is admittedly hackneyed but none the less true. Gustave Doré, Lady Butler, Felix Philpoteaux, W. B. Wollen, and others recognised this; and it is in this direction, amongst others, that the ultra-modern schools fail.

Indeed, Mr. Nevinson himself seems to have wearied of the highest flights of extravagance, and the result is that there is grain amidst the chaff. "Pursuing a Taube" legitimately expresses and well expresses rapid flight; "A Taube" (9) portrays a street tragedy with a fidelity that supplies the pathos belonging to it, which, treated cubistically, would have been inevitably lost. "Twilight" has an almost sculptural air about its group of a soldier carrying a wounded comrade.

To a large extent, it is not the horrors of war but the horrors of cubism which confront us in this exhibition.

though less pronounced than on former occasions. "The Doctor," however, properly indicates the unpoetical aspect of war.

There are two works which deserve fully appreciative notice—"A Wood" (44), monochromatic in tone, displays good atmosphere and distance; the other, "Before the Storm" (48), shows an aeroplane in flight, and is excellent technique and forceful treatment. "La miradilleuse" is passably interesting and successful, and with these the best have been mentioned; most of the others may well be disregarded.

#### TUDOR MANOR HOUSE IN SOMERSET.

Much of the land in Locking, Somerset, belongs to the Merchant Venturers of Bristol, and the old manor of Locking has also remained in their hands. The manor house is situated within four miles of Weston-super-Mare, being pleasantly placed on a hill overlooking a beautiful vale, and is traditionally noted as having a vast treasure hidden in some unknown part of the grounds, and is also said to have been haunted since 1685 by a lady in white carrying a dog. In the year 1325, when the noted Priory of Woodspring was founded, Galfridus Gilbelyn gave "his whole manor of Lokyng, with all belonging to it except four freemen, as part of its endowment." After the Dissolution the manor, which at that time was valued at £24 18s. 11d., was granted to Sir William St. Loe, who sold it, together with the advowson of the church, to Thomas Clarke in 1542. Subsequently the manor was held by the family of Norris. From the Norris family it passed to the Carliles, and afterwards to John Plumley, or Plumley. The last-named joined the Monmouth Rebellion, and his estates were forfeited to the Crown. The Manor of Locking then passed by purchase to Edward Colston, Bristol's greatest philanthropist, who in 1708 endowed his celebrated school in Bristol with it. From that time the Manor of Locking has remained in the hands of the Merchant Venturers as trustees of the Colston charities.

At one time the house was considerably larger, and was surrounded by a moat, which has been partially filled in, the portion on the south side now forming the main highway past the premises. Among the various tenants who have resided in the manor house the most noted was John Plumley, who was lord of the manor in 1685. He ultimately lost his life by his hasty adherence to the Duke of Monmouth, whose forces he joined. With his two sons he fought at Sedgemoor against the Royalists, and in the engagement his two sons were killed. John Plumley, however, managed to escape in the general rout which followed, and secreted himself in the neighbourhood of his home. A favourite dog by barking attracted the attention of soldiers to his hiding place, and they dragged him forth from the spot behind a large stone, which still remains to mark the place, and without trial or opportunity of receiving pardon they hanged him upon a large elm tree close by. His wife witnessed the deed, and at once threw herself with the dog into a well in the garden. The well into which the unfortunate wife of John Plumley threw herself was formerly between the yew trees still standing in the garden at the back of the house. The well has been closed for many years, but it was opened some time ago, and then showed signs of having been hurriedly filled up. The painful circumstances under which the distracted lady ended her days gave rise to the idea that the house was haunted. Although the ghost has not been seen for some time, it is confidently asserted by many who have now joined the spirit world themselves that a lady in white, carrying a dog in her arms, has appeared, and has been seen walking in the path known as the Ghost's Walk, and after reaching the spot where the well once was the phantom has suddenly vanished.

In about 1750 the manor house, together with 150 acres of land, the portion held by the Merchant Venturers, which is now the only property in the parish not included in the manor, was sold to a Mr. Jenkins (says the

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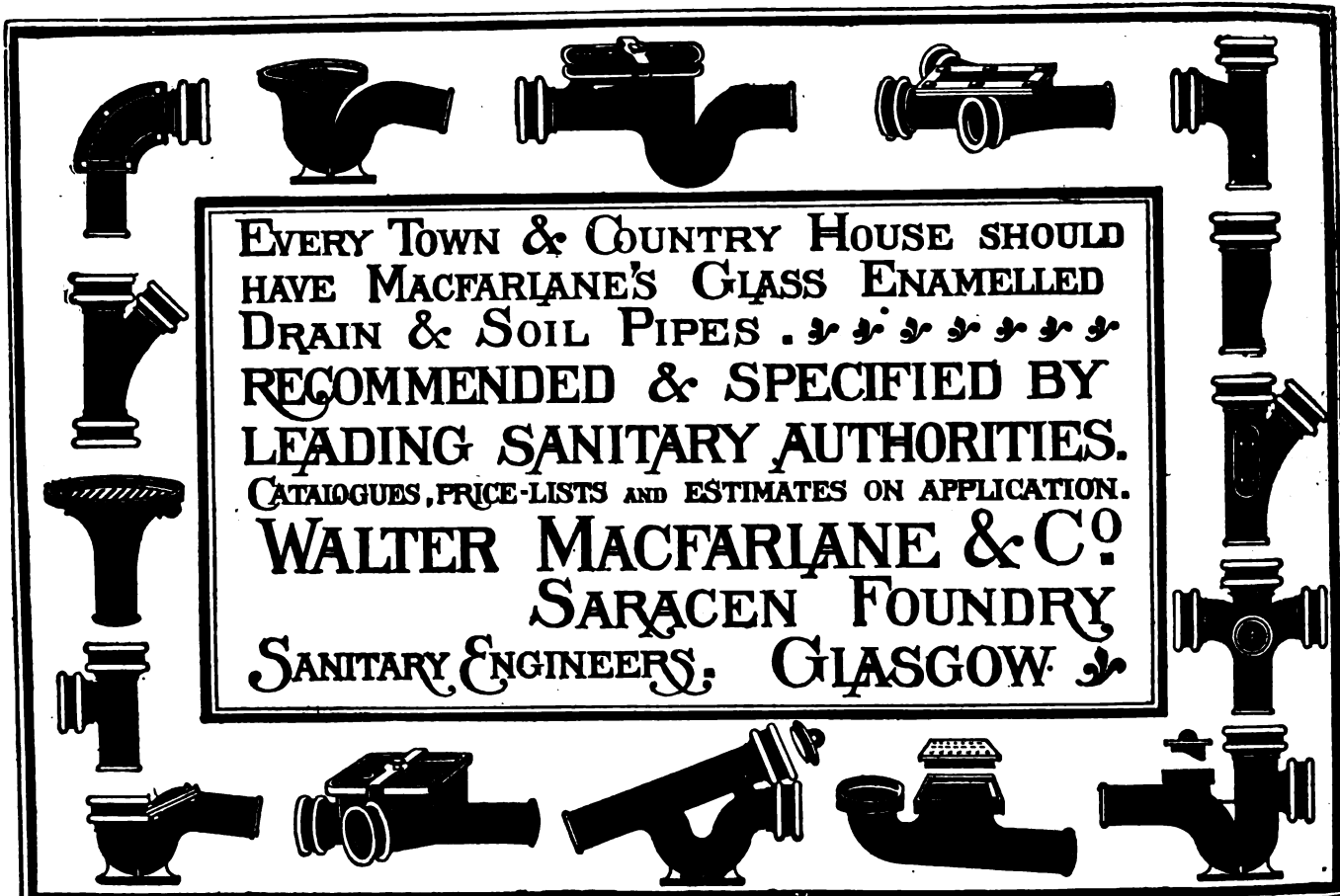
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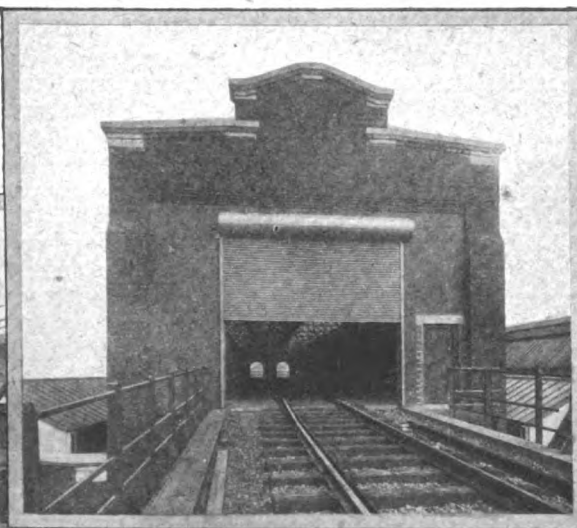
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"Bristol Times"). It continued in the Jenkins family until somewhere about 1870, and upon that family becoming extinct in the male line, the property was sold to Mr. R. A. Hill, who is the present owner.

One of the former tenants of Locking Manor House was the Rev. Stiverd Jenkins, who officiated at Weston-super-Mare. He evidently had ideas of his own, and a partiality for Druidical circles, for he expended much time and labour in attempting to convert the lawn on the east side of the house into a miniature Stonehenge, and twenty or more monoliths were conveyed from the heights of Mendip to the lawn. The tallest of the stones is nearly 10 ft. in height, and several others are from 8 to 9 feet high. The manor house was erected at a period when domestic architecture had attained a high standard of excellence, but alterations without any apparent regard for beauty have denuded it of much of its former dignity. Battlements, mullioned windows, gables, and clustered chimneys, so picturesque and so intimately associated with old manor houses of the Eliza-

of the landing are quaint bedrooms which possess fire-places. Next in importance is the ancient parish church, famous for its fine old font and elegant pulpit. The tower is a beautiful specimen of fourteenth century work. The curious carved font is Anglo-Saxon, and one of the oldest in the kingdom.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### German Trenches at Maldegem.

SIR,—On October 6 the evening Press reported that Belgian civilians of Adegem were being forced to dig trenches for the Germans at the neighbouring village of Maldegem, on the Bruges side of Eecloo.



11.11.82.

Adegem.



11.11.82.

Maldegem.

bethan period, are entirely absent. Improvements which have been undertaken within the last few years have in some measure imparted to the house a more pleasing appearance. Apart from its style, the surroundings of Locking Manor House are simply delightful. Everything at Locking conspires to produce an effect of beauty. From the fine magnolia covering a considerable portion of its walls on the south front, or the forest trees of various kinds which ornament the grounds, to the proud peacocks daintily stalking about the lawns, there are few homes more beautiful in their surroundings than this sylvan retreat.

On the north-east side of the house is the old brew-house, which at one time was a very essential adjunct to every house of importance. It is a quaint and curiously-constructed building, showing unmistakable signs of antiquity. On the east is a very fine avenue of elms extending for over a quarter of a mile towards Banwell, while on the north-east are the remains of what was once another avenue which led to the house.

The house itself consists of a rectangular block. In the dining room one may see something of the original style of architecture. In the left-hand corner on the west side is a curious recess with an arch above of shell pattern. There is also an excellent plaster mantle-piece corresponding in design with one still in a house in Queen Square, Bristol. It dates from Jacobean times, and is elegant in ornamentation. Some years since an opening was made through the wall of the dining room, which measures four feet in thickness, and in the wall was discovered an ancient stairway and parts of a fireplace. The stairway is supposed to have led to a secret chamber which in houses erected in those times of religious ferment were so often found convenient for hiding those who still performed their prohibited religious rites.

The main staircase faces the hall, and on either side

We have already referred to the churches of these two villages in a previous war-zone article, and the two little thumbnail sketches of the steeples will prove of interest. They were taken from the train when at a stop in the stations of those places. Both towers are of brick, Adegem's being whitewashed. Maldegem's has a small sundial at the top of the south side of the tower. The tower itself is slightly irregular (as shown), but none the less effective.

Maldegem and its fine old château occupy a prominent place in Henri Conscience's "Lion of Flanders."—Yours, &c.,

JOHN A. RANDOLPH.

### BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

#### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### DEVON.

*Barnstaple*.—Stores, G.W.R. Co.'s yard, for the Shell Motor Spirit Co.

##### DURHAM.

*Blackhall Colliery*.—P.M. chapel. Mr. T. W. T. Richardson, architect, 57 High Street, Stockton-on-Tees.

*Old Penshaw*.—Four houses for Mr. A. H. Wood.

*West Pelton*.—Colliery manager's and engineer's houses: alterations for Messrs. Joicey & Co., Ltd.

##### ESSEX.

*Barking*.—Proposed public library.

*Stratford (West Ham)*.—Nos. 6 and 8 Ward Road: additions for Mr. T. Watson.

No. 72 High Street: additions. Mr. R. Bank-Martin, architect, 121 Plashet Grove, East Ham.

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—37

## ENGLAND.—Continued.

Nos. 338 and 340 High Street: alterations. Messrs. Goodwyn & Sons, architects, Granville Chambers, Granville Place, London, W.  
Three Mills Distillery: addition for Messrs. J. & W. Nicholsons. Ltd.  
Factory, Broad Street: additions. Mr. G. J. Hosking, builder, 27 Sylvan Road, Forest Gate, E.  
Alexandra Mills, High Street: alterations. Messrs. Moore-Smith & Durrant, R.I.B.A., architects, 14 Union Court, Old Broad Street, London.

## KENT.

Folkestone, West.—Proposed R.C. church.

## LANCASHIRE.

Bispham.—House, Shaftesbury Avenue, for Mr. B. Rhodes.

Two houses, Empress Drive, for Mrs. N. Salisbury.

Blackpool.—The "Kettledrum" Café, West Street: additions for Mr. A. T. Lever.

The "Waterloo" Picture Palace: additions.

Holmshore.—Park Hill: addition for Messrs. J. H. Birtwistle & Co., Ltd.

## LINCOLNSHIRE.

Lincoln.—No. 51-53 Burton Road: alterations for Mr. G. Tinker.

Saw Mill, Canwick Road: extension for Messrs. Robey & Co., Ltd.

## NOTTINGHAMSHIRE.

Mansfield.—Cinema, Clipstone Camp (2,000 or more sittings).

## STAFFORDSHIRE.

Handsworth.—C. J. Homer Memorial Church, Alfred and Soho Roads.

Leek.—Ballington House: motor garage and offices for Mr. H. Rowson.

Workshop, West Street: extension for Messrs. C. Leek & Sons.

## SURREY.

Woking.—Proposed R.C. church.

## SUSSEX.

Eastbourne.—"Elm Tree." The Goffs: garage. Mr. F. G. Cooke, architect, 2 Hyde Gardens. Messrs. G. Bainbridge & Son, contractors, 77 Terminus Road.

"Merlin," Devonshire Place: alterations. Mr. F. G. Cooke, architect (as above).

Horsham.—R.C. church: enlargement.

## YORKSHIRE.

Liversedge.—House, Eddercliffe: alterations for Mr. D. Beaumont.

Middlesbrough.—Garage, Oxford Road: additions for the Tramway Company.

Selby.—Twenty-two Council houses, Kitchener Street.

## SCOTLAND.

Aberdeen.—Premises, Union Glen: alterations for the Morgan Nature Toy Co. Mr. J. Cameron, architect, 381 Union Street.

No. 7 Hadden Street: alterations for Messrs. W. Smith & Son. Messrs. Kelly & Nicol, architects, 367 Union Street.

Engineering premises, Clyde Street: alterations for Mr. R. E. Lewis.

Dundee.—Store, Douglas Street, for Messrs. Halley Brothers, Ltd.

Longniddry.—Cottages for the Scottish Veterans' Garden City Association (£8,000). Mr. McIntyre Henry, F.R.I.B.A., architect, 7 South Charlotte Street, Edinburgh.

## IRELAND.

Cork.—No. 11 Grand Parade: rebuilding for Mr. W. J. O'Sullivan. Mr. J. F. McMullen, M.R.I.A.I., architect, 30 South Mall.

Dublin.—No. 31 Lower Sackville Street: rebuilding for the Saxone Shoe Co., Ltd. Messrs. Donnelly, Moore, Keefe & Robinson, architects, 36 Nassau Street.

Premises, corner of Upper Sackville and Cathedral Streets. Mr. P. J. Munden, architect, 5 Trinity Street.

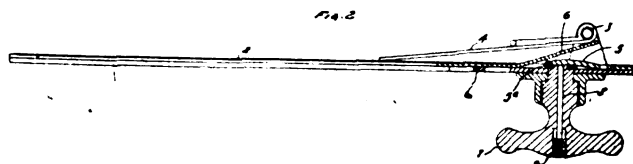
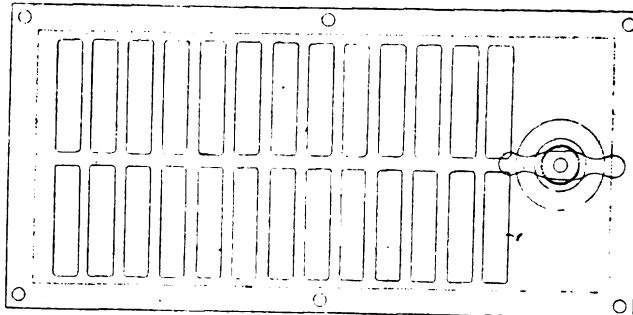
MR. GEORGE BROWN, of Pear Tree House, Tyldesley, Lancashire, architect, formerly of 8 Exchange Street, Manchester, has left estate valued at £14,160 (net personalty £13,723).

## BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 11,421. Aug. 7, 1915. Ventilating louvres.—A. W. Stewart, 55 West Regent Street, Glasgow.—This invention has for its primary object to provide a means of control incapable of being interfered with by unauthorised persons for determining the maximum volume of air capable of being passed by the louvre. The invention consists in a ventilating louvre provided with a hinged shutter and with manually operable means for adjusting shutter and thereby regulating the passage of air through the louvre, and with independent means for adjusting the action of the regulating



means so as to fix the limits of adjustment effected. Fig. 1 is a front elevation and fig. 2 a cross-section of the ventilating louvre. The louvred member 1 is provided with a hinged shutter 2, adapted to be moved on its hinges 3 against the action of a spring-pressed finger 4 by the rotation of a hinged cam member 5 for which an inclined extension 6 of the shutter constitutes the cam follower, said cam member 5 being rotatable by movement of a handle 7 and being constituted by a hinged cam plate, one face of which bears against the follower 6 when in operation and against the other face of which bears a pin 8 capable of being moved axially by manipulation of a screw 9 so as to move the cam member 5 on its hinge 5a and thereby vary the cam action. As will be understood, the cam member 5 with the handle constitutes the manually operable regulating means for adjusting the shutter, while the pin 8 with screw 9 constitutes the independent means serving to fix the limits of adjustment effected by such regulating means. Sept. 6, 1916.

## PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 11,182. Aug. 3, 1915.—J. W. Goddard, Station Street, Leicester, and A. Priestnall, 21 Abney Street, East Park Road, Leicester. Copying machines for cutting or grinding wood and metal.

11,233. Aug. 3, 1915.—Florence Falconer, 9 Kensington Park Road, Notting Hill Gate, W. Lock and indicator for holding and locking keys, tools, and other portable articles.

12,694. A. F. Berry, 48 Oxford Street, W. Apparatus for heating and otherwise treating the air supply to buildings and the like.

12,590. Sept. 2, 1915.—J. T. Taylor, 8 Springfield Street, Wigan, and M. H. Herd, 34 Market Street, Wigan. Means for and method of lighting up the gangways of picture palaces and the like.

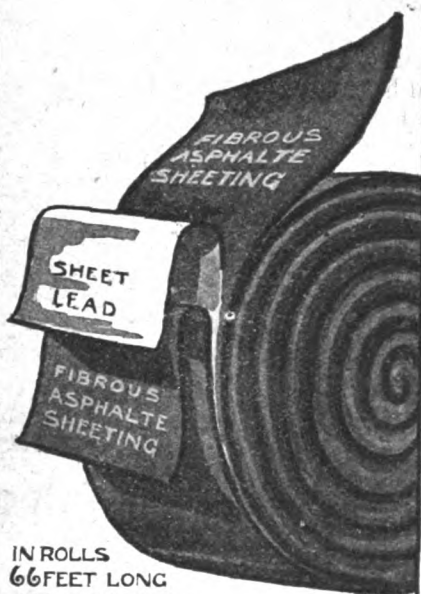
14,547. Oct. 14, 1915.—S. R. Paskin, 129 Jeffcock Road, Wolverhampton. Brackets.

15,222. Oct. 28, 1915.—Gerald St. John Day, Bank Mill, Morton Etrete, Oldham, Lancs. Combined electric-lamp holder and detachable shade supporter.

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# THE ARCHITECT

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## FORTHCOMING EVENTS.

Thursday, October 26.

L.C.C. Central School of Arts and Crafts, Southampton Row, W.C. : University Extension Lecture IV. on "English Architecture. 'The Principles of Mediaeval Architecture (A.D. 1066-1550),' by Mr. Banister Fletcher, F.R.I.B.A., at 6 P.M.

## BUILDING DURING THE WAR AND AFTER.

The statement emanating from the Ministry of Munitions which we reproduced last week sets forth very clearly the reason and need for the restriction of private building operations, which has now been in force for some time. The call of the war upon the building trade has been of a twofold character, affecting, first the men, second the material. Men in the building trade of military age are of special value in the Army, whether as infantry in the fighting line, on account of their strength and their familiarity with the use of tools—for the modern soldier is essentially a tool-user—or more particularly as constructive soldiers, not only in the Royal Engineers, but as builders of dug-outs and of all the varied accommodation that is required for a modern army behind the actual firing line. Therefore one can readily understand that the military authorities are eager to get as many men from the building trade as possible into the ranks of the fighting regiments.

On the other hand, the supply of necessities for the fighting army, arms, ammunition, equipment, and food, is required on a scale immensely greater than was sufficient in peace-time for the same number of men. Factories are imperatively needed to render possible an increase in our industrial output in all directions. The fighting soldier requires more clothes, more boots, more equipment, far more frequently renewed than the civilian in peace-time. He wants more food, packed and transported to greater distances. Hence all the available building power of the country is required for the erection of factories and of accommodation for both soldiers and munition workers. The fact is that the building trade has not been for many a year so intensely active as it is at the present moment. It is true that the direction of this activity has been changed. Churches, schools, free libraries, municipal buildings, private houses, are not being erected but building is going on energetically.

Another change in the character of buildings is also in progress. In the early days of the war there was a strong inclination to run up temporary buildings, an inclination dictated partly by the desire for speed, partly by a feeling that there would be no further use for the buildings after the war. Hutments for troops and sheds for factories appeared to fill the bill. Experience, however, showed that there is not a very great margin of difference in cost between a temporary building hastily run up and a more permanent erection, and that when the scrap value of the former and the reversionary value of the latter are considered, true economy is found on the side of sound and substantial building.

Also there has arisen the conviction that the magnified activity of the nation's industrial output induced by war conditions must and will be maintained after the

war, partly to provide adequate employment and a high level of wage-earning for those who have learnt the advantages of working hard and being well paid, partly to make good the arrears of useful production accumulated during the expenditure of labour and capital on fireworks, partly to provide the material for an expanded national commerce. Hence factories are being now more substantially built, with a view to their usefulness after the war. All of which tends to accentuate the activity of the building trade. Even our architects are beginning to get their share of this activity. Many are employed in various directions through the Ministry of Munitions. Others are directly engaged in the building of the numerous factories for which the demand is still unsatisfied.

So much for the war's absorption of the men in the building trade. Quite as complete and as forcible has been the grasp on material. Not a cubic foot of steel or timber can be spared from direct military employment except of those kinds that are not good enough or suitable for war material. Shell discard steel can be obtained, and is being used for building. Some hard woods are not greatly in demand for aeroplanes or other fighting apparatus. Holders and manufacturers of such and similar materials need to publish more widely their capabilities, which are not sufficiently known amongst those actively concerned in the building that is going on. To put the thing in a nutshell, there are some materials ordinarily used in building that are now unobtainable; there are others that can be used to take their place, so that building need not stop for want of material.

The final paragraph in the statement of the Ministry of Munitions is of exceeding importance. After the war there will be another great upheaval of the national industrial activity. The prospect of five million soldiers and three million munitioners wanting a job is a nightmare to the Government. Therefore their anxiety is great that the building which has been forcibly repressed during the war should be undertaken immediately peace has been proclaimed, so that the demobilisation of men in the building trade and of all those engaged in the ramifications of industry that depend on building may be facilitated.

We noted in the columns of "The Architect" some time ago the circular letter of inquiry from the Local Government Board to local authorities asking for particulars of works they proposed or desired to carry out in their respective areas, and also of any contemplated private building operations of which they had cognisance. The present appeal of the Ministry of Munitions to the public to take advantage of the period during which the regulations are in force to get plans prepared for future undertakings is further evidence of the anxiety of the Government that the building trade shall carry on in full swing when its services are no longer imperatively needed for war purposes.

The most pressing of the arrears of building is undoubtedly the supply of housing accommodation, which for cottage building, urban and rural, may be placed, in round figures, at a shortage of half a million houses. There are three principal deterrent causes which operate against the provision of this urgently needed housing accommodation by private enterprise. First, and most potent, the Finance Act of 1910, the passing of which was the heaviest blow to housing that has ever fallen and the primary cause of the present terrible shortage; second, the availability of capital; third, the unduly severe restrictions of building and sanitary by-laws, particularly in rural districts. This third obstacle to cottage building is chiefly concerned with the question of economic rents. Private enterprise knows to a penny the weekly rent that can be obtained for any particular cottage in any particular locality; and if a fair return is, owing to legislative restrictions, improbable, it holds aloof.

The full resumption or continuance of building-trade activity after the war requires immediate action by the

Government directed to the removal of the deterrents we have enunciated. The prejudicial clauses of the Finance Act of 1910 must be at once repealed in accordance with the pledge already given. The Government must announce the terms on which they are prepared to advance capital for any contemplated and approved building enterprise, whether for the housing of the working classes or for other remunerative purpose. We do not expect them to borrow money at 6 per cent. and lend it at 3, but we do want to know at what figure it can be furnished. Privately owned capital, after the war, will then follow their lead. The modification of existing by-laws is desirable, but only imperative if the Government really desire the housing of the working classes at rents they can afford to pay.

Architects and their clients may be trusted to deal with the question of the post-war price of building, and to make full preparation for future undertakings, so that work may be ready to start when the demobilisation of the Army begins after the war, if the Government act immediately in the direction we have indicated.

### NOTES AND COMMENTS.

THE Società Leonardo da Vinci, which has at various times during the present war voiced the protests of the civilised world against the disregard by the barbarians of Central Europe of Article 27 of the Regulations of The Hague Tribunal dealing with the safeguarding of historic monuments and depositories of art from wilful damage in times of war, now asks from representatives of our historic and ecclesiastical monuments, our universities, art collections, libraries and similar institutions, public or private, in short all those interested in and responsible for the preservation of the historic monuments and art collections of Great Britain, their co-operation in devising some international measures for the future protection in times of war of our joint heritage, which could be introduced at the proper moment by those statesmen who will be charged with the conduct of the peace negotiations, and with the steps to be taken finally to render impotent all attempts on the part of the Central Empires to impose Teutonic barbarism on civilised nations. The Società is aware of the difficulty not only of framing such measures, but also as to the future enforcement of them when framed and accepted. But we may all venture to expect that in any future war the two nations which have so wantonly outraged all principles of civilised warfare will have profited by the punishment inflicted upon them; and that, if for no other reason than from fear lest that punishment should be repeated, they will have reverted to an attitude of civil decency. It is suggested that wilful damage, or attempts at such damage, to historic monuments and depositories of art and learning should expose the nation or nations committing it to subsequent reprisals—that, in fact, the principle of an eye for an eye and a tooth for a tooth should be carried into practice also in cases in which the common artistic heritage has suffered. It is obvious that mere pecuniary compensation could not in any way counter-balance the loss of priceless works of art or the destruction of equally priceless historic and architectural monuments. But if the destroyers, or would-be destroyers, knew that compensation in kind would be required of them, and that their own museums, galleries, libraries, and other depositories of art and learning would be compelled, so far as possible, to make good their ravages, it is conceivable that these outrages on our art heritage would not in future be regarded by any belligerent nation as politic.

The damage done to the famous Ca' d'Oro by riotous Austrian officers during their occupation of Venice, which happily ended in 1866, has been, as far as possible, made good by Baron Franchetti, of Murano, who bought the palace about 1895, and turned it into a private museum, which he has now handed over to the Italian Government. Baron Franchetti has made certain stipulations, which

no doubt the Government will accept. These are, that the Government will keep the palace always in repair; that they will arrange certain rooms for the proper exhibition of the objects of art he is bequeathing with the palace, to which others may be added; that for this purpose they purchase and take down the neighbouring palace of Vettor Guisto, which darkens the rooms on the west side of the palace. Lastly, that the palace be open to the public and be called the "Galleria Ca' d'Oro" during the Baron's lifetime, but after his death shall be known as the "Galleria Franchetti."

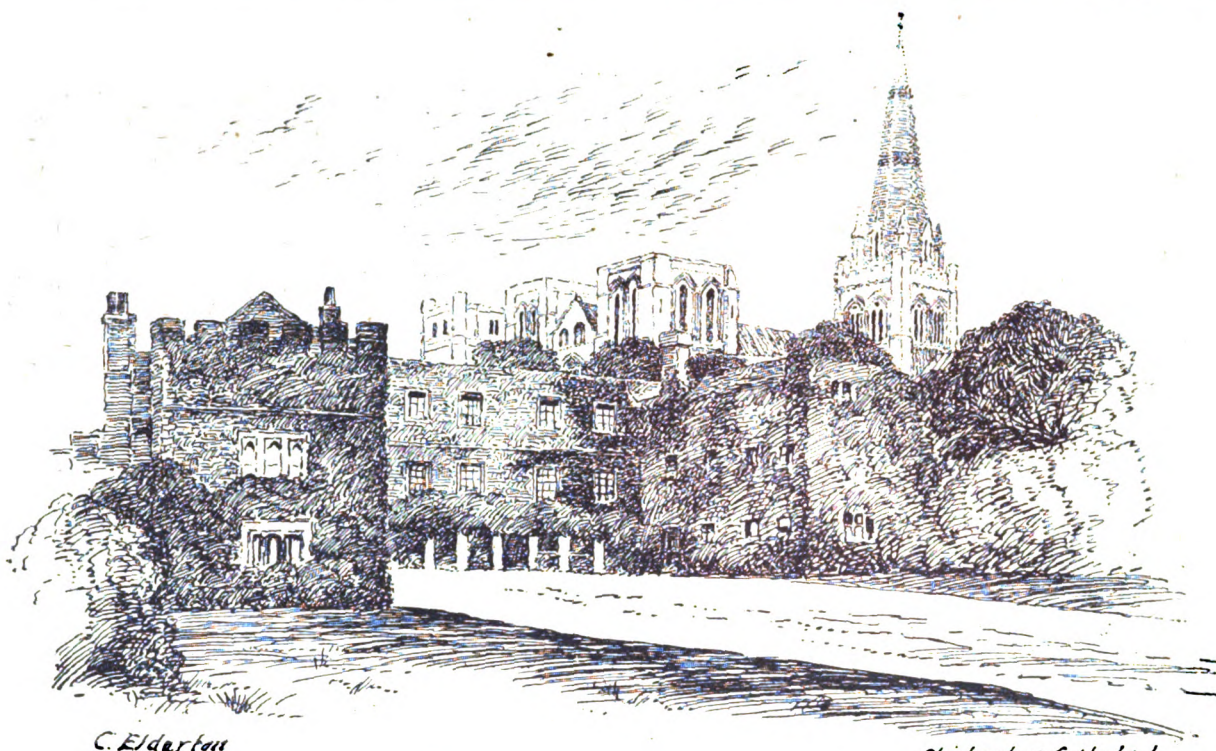
Baron Franchetti says he will be satisfied if these conditions, which accompany the handsome gift, be carried out within a period of six years. No doubt the Government will pledge itself to do so, making the palace another national monument.

In a paper by Sir John Stirling Maxwell read before the National Scottish Conference on "Employment on the Land," the writer said that for a hundred years we had regarded our woods as ornaments and luxuries. We had suddenly wakened up to the fact that they were a national interest, and that in this respect we were the poorest country in the world. The two problems, the employment of women and afforestation, each of which touched the root of our national economy, were intimately connected, and he believed the solution of each would help the other. Probably always, and certainly during the first period of rapid expansion which must follow the adoption of a policy of afforestation, want of labour was likely to be the forester's chief difficulty. Of the aptitude of women for forestry work there could be no doubt in the mind of anyone who had studied the practice of foreign countries or the experience of our own where the experiment had been tried. There was no reason why woman should not be as supreme in the forest nursery as she was in her own. Except for trenching of the ground, which was only required at long intervals, nursery work was essentially light work, though when the trees passed from the thicket to the pole stage they passed from the hands of women.

A somewhat amusing game of battledore and shuttlecock is being played between the Hove Town Council and the Board of Trade relative to a proposed pier in reinforced concrete to be erected at Hove. In the proceedings of the Works and Improvements Committee it was stated the Committee had had under consideration a letter from the Board of Trade relative to the application of the Hove Pier and Kursaal Co., Ltd., for consent to the construction of the proposed pier in Hove up to deck level under the Hove Pier Order, 1912. The Board stated they were not in a position to express any opinion from the engineering standpoint on the question of the method of construction or of the sufficiency of the structure for the purposes intended by the company, who must accept all responsibility in that connection, and further asked the Council to state definitely if the plans are approved by them. The previous resolution confirmed by the Council was to the effect that the plans as submitted be approved, subject to the Board of Trade being satisfied as to the method of construction by reinforced concrete, and subject also to plans of details of the pier not already submitted being forwarded to the Council for approval. The resolution passed by the Committee was as follows: "That the plans submitted to the Town Council by Mr. Hoyne Fox be approved without any expression of opinion from the engineering standpoint on the question of the method of construction or of the sufficiency of the structure for the purposes for which it is intended by the company, for which the Council accepts no responsibility, and that the attention of the Board of Trade be called to the variations set out in the Borough Surveyor's Report."

The anniversary of the consecration of St. Aidan's Church, Roundhay Road, Leeds, was marked by the unveiling and dedication of mosaics—designed by Mr. Frank





Chichester Cathedral.

Brangwyn to represent scenes from the life of St. Aidan—which cover the choir walls and apse of the church. They are the gift of Mr. Robert Kitson. The ceremony was conducted at Evensong by the Rev. A. W. Swayne, during whose vicariate, about six years ago, Mr. Kitson made his munificent gift. In his sermon Mr. Swayne commented on the difference between the eighteenth century church and service and those of the present day. The former services, he said, were dull and the church bare, because there was a general fear of Popery in anything that was bright and beautiful. What a change since those days! What would happen, he wondered, if one of the old bewigged squires were to enter St. Aidan's Church? He would look in vain for his pew; he would stare in amazement at the elevated altar and font, and he would regard the lights and surplices as imitations of Popery. If he were inclined to quote Scripture the visitor would say: "To what purpose is this waste?" Thank Heaven, declared the preacher, that that battle had been fought and won. It was known now that beauty had its beginning in the House of God, and that modern poetry, painting, and music had their birth, were sanctified and blessed there. That it was possible to dedicate that glowing decoration was due not only to the generosity of the donor, but also to the fearless conviction of those men who saw there was no form of beauty which should be outside the sacred power of the spirit of God.

The shipbuilding and manufacturing industries of Glasgow having been specially stimulated by the war, it follows that there the general shortage of housing accommodation throughout the country has become particularly acute. The causes of the diminution of the activity of private enterprise, which we have repeatedly pointed out, are there recognised, but no doubt owing to an obstinate persistence of political party feeling various panaceas are put forward to avoid the most obvious remedies. Labour housing and other associations are agitating for the employment of public funds, free of interest, in national or municipal building schemes. The new Dean of Guild, in taking office, put forward his views, basing his remarks on the suggestion of the Ministry of Munitions, that the public should make their immediate preparations for building after the war. He

urged that the slums of Glasgow could not be rebuilt without the expenditure of much time and money, but something might meantime be attempted, at least on paper, so that when the war was over we should know what could be done to improve existing unsatisfactory dwelling-houses and their surroundings. He ventured to suggest that the architects of Glasgow might be invited to prepare plans, based upon information provided by the Master of Works' Department and the sanitary authorities, illustrating their individual proposals for the simplest and most economical renovations of typical slum buildings, and for the improvement of the surroundings of these, and also to prepare plans giving their ideas of what they would consider satisfactory dwellings for artisans in the city or in the suburbs. The Corporation of Glasgow, the Merchants' House, and the Trades House might combine in inaugurating such an exhibition, and suitable premiums might be awarded for the designs submitted which were most favoured.

An important recommendation has just been made to Lord Balfour of Burleigh's Committee by the Advisory Committee representing the Iron and Steel industries set up some months ago by the Board of Trade. It recommends the prohibition of all imports of iron and steel manufactures from enemy countries during the period of reconstruction, and considers that the Government should urge the adoption of a similar policy on the Dominions and other parts of the Empire. All the ores and minerals necessary for the manufacture are to be admitted free, but only in their natural and unworked state; and these raw materials, whenever produced in the Empire, should be prevented from entering enemy countries. It is further recommended that British ships shall be prevented from carrying raw materials or manufactured iron and steel from neutral ports to enemy countries or to neutral ports for ultimate despatch to those countries.

Naturally the Committee, being composed of business men, does not contemplate a too rigid code of rules, and suggests the setting up of a body representing the industries concerned, which should have power to issue licences in exceptional cases. Moreover, the recommendations made are temporary—to be operative only during the period of reconstruction after the war—and without prejudice to any decisions that may be arrived at as to permanent fiscal policy.



The possibility of cheapening the supply of electricity, so that it may be more widely employed as a source of power in manufacturing industries, is intimately connected with the coming battle for industrial supremacy. There is little doubt that such cheapening involves the co-operation or amalgamation of the many comparatively small producers of electricity at present existing. Thus considerable interest attaches to the interim report of the Committee for the Interconnection of Lancashire and Cheshire Electricity Supply Systems, who have for some time been considering this subject in relation to the necessity for conserving the nation's resources, and increasing its producing capacity during and after the war.

The Committee held their first meeting on May 16 this year, and decided for the purposes of the scheme to divide the electrical undertakings in the two counties into six groups. Two groups were eventually dropped out of the scheme, one being the group in which the undertakings are situated in a very wide area. The report refers, therefore, to four groups, comprising thirty-two undertakings, twenty-eight undertakings remaining outside the scheme. It was considered that if the four groups were interconnected the average coal consumption per unit generated—3.24 lb.—could be reduced by not less than .5 lb. of coal per unit. With coal at 17s. 6d. per ton, this reduction represents an annual saving on the present output of £82,000. After these preliminary conclusions the Committee interrogated by letter and deputation the Government Departments concerned. To a suggestion that the Government might favourably consider the question of providing the necessary capital to effect the interconnection proposals on terms that would produce a strong inducement to the parties interested, Mr. Marwood, of the Board of Trade, replied that there was no hope of this being done, but a representative from the Treasury stated that that Department would favourably consider the expenditure required for the scheme, subject to the sanction of the Local Government Board and of the Board of Trade.

As a result of this interview the Committee found that it was advisable to constitute joint boards or joint committees representative of the local authorities which should be empowered to enter into working arrangements with the power companies. A conference of all local supply authorities interested in the scheme was also recommended, with the view of developing the proposals set forth in the report, such conference to be presided over by a Government official. Further recommendations are that, subject to general approval being given to the scheme by the authorities concerned, an application should be made to the Board of Trade to set up a joint committee or board under Section 8 of the Electric Lighting Act, 1909; that, pending the appointment of such a body, undertakings favourably situated may enter into voluntary arrangements for joint working; and that, in order to ensure that local schemes shall conform with the requirements of the whole project, local authorities should temporarily appoint joint committees, to whom all proposals for the provision of mains or other interconnecting works shall first be submitted.

## ILLUSTRATIONS.

### NORTH COUNTRY HOUSES.

THESE designs for houses by Mr. Edward Cratney, F.R.I.B.A., form a series which is well worthy of study, and sufficiently explained by the drawings we reproduce.

MR. MCKINNON WOOD, M.P., in reply to a question by Mr. Ashley, says, "The direct savings resulting from closing the national museums and picture galleries to the public are estimated at approximately £50,000 per annum, in addition to which a large economy results from freeing staffs, and in several cases accommodation for purposes of immediate national importance at the present time."

## LEEDS AND SHEFFIELD UNIVERSITIES AND THE WAR.

To get an adequate impression of what this war really means, get away from London to some of our vast manufacturing towns, and if you may be privileged to get a look into either of these Universities, and could follow this up by a visit to some of the large works, then and only then can you conceive the stupendous work which is being done in our great business centres. At these younger Universities Science in its practical everyday use in the works is the keynote of the students' training, and it is a pity that the general public is entirely ignorant of the valuable work which is being carried on. Both Universities are suffering naturally from a serious depletion of students, but in each case, both at Leeds and at Sheffield, the Vice-Chancellors announced this fact with great pride. Architecturally the buildings both at Leeds and Sheffield could not, of course, be compared in any way to Oxford and Cambridge. Both buildings have, however, been designed and built in such a manner that the present time has found them admirably equipped to deal with research work of incalculable value to the Government. On Monday and Tuesday of last week a party of technical journalists, Members of the Institute of Journalists, at the invitation of Dr. Sadler, Vice-Chancellor of Leeds University, and of Dr. Fisher, Vice-Chancellor of Sheffield University, paid a special visit to these two great Yorkshire cities, and were conducted through the respective Universities, the work there being inspected, and the various professors most minutely explaining the procedure in the particular study for which he was responsible. This part of the programme occupied the major portion of the morning, the afternoon being devoted to a hurried visit to clothing and boot manufactories in Leeds, and the munition works in Sheffield, and here the application of Science from the theoretical side to the practical was very fully demonstrated. The county of Yorkshire may with every justification be proud of its Universities, and of its professors, and they need have no cause to be ashamed of the buildings in which their work is carried on. The war has been responsible for a considerable curtailment of activities in some directions, but great advances have been made in others, and although no doubt the University funds have suffered considerably through the falling off in the number of students, the country is the richer by the valuable time which the professors have from that cause been able to devote to matters which during the war are invaluable, and which at the termination of it will have a great influence in the furtherance of British trade and commerce. As a large number of our readers are no doubt better acquainted with the work of our greater Universities it will doubtless be of considerable interest to them if particulars which were prepared for this visit by the University authorities are pretty freely given.

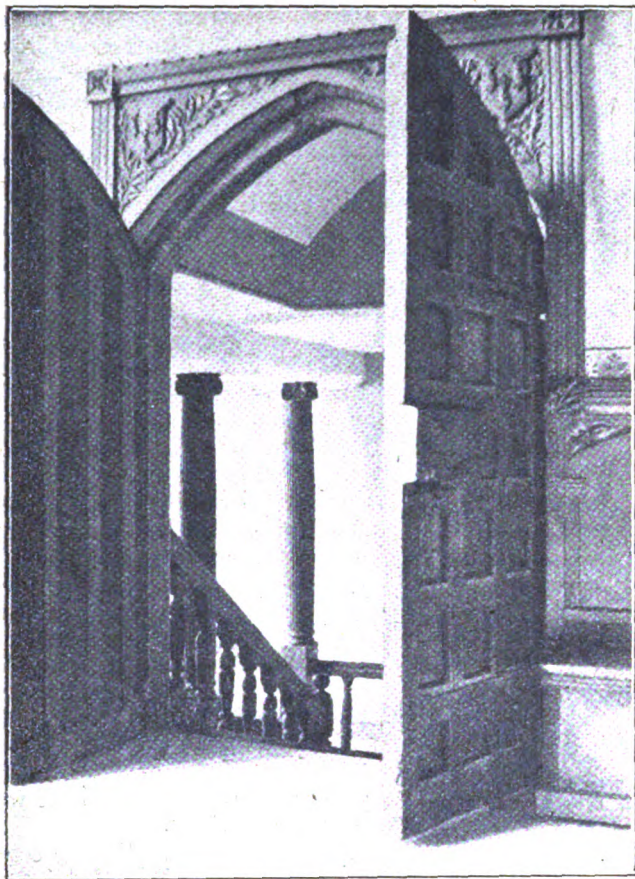
### LEEDS UNIVERSITY.

The University of Leeds was established by Royal Charter in 1904. It is the successor of the Yorkshire College, which, under the title "Yorkshire College of Science," commenced its work in 1874, and which, from 1887 to 1904, was a constituent College of the Victoria University. The Medical School of the University, which was incorporated with the Yorkshire College in 1884, was instituted in 1831, and is thus the oldest part of the University.

The University is organised in four Faculties—Arts, Science, Technology and Medicine. The main buildings of the University are situated on a plot of ground about eight acres in extent, and roughly triangular in shape, bounded by Woodhouse Lane, College Road and the Woodhouse Cemetery. The School of Medicine is accommodated in another building, separated by the width of a roadway from the Leeds General Infirmary.

The University, though bearing (like its sisters of





DOORWAY AT THE GUILDHALL, KING'S LYNN.

Manchester, Liverpool, Sheffield and Birmingham) the name of the city in which it has its seat, serves the whole of Yorkshire with the exception of the district surrounding Sheffield, which has its own University. The educational work and responsibilities of the University extend into all three Ridings. It is not a city institution confined to Leeds. It is a Yorkshire University, and also national. Students come to it from every part of England and from every part of the Empire. But the majority come from the West Riding, especially from Leeds and Bradford, and from the other cities and towns of Yorkshire. Its Faculties of Arts (including Law and the study of Education), Science, Technology and Medicine are all fully equipped. In humanistic studies (including modern and ancient languages and literatures, ancient and modern history, and the study of economics) it is strong. But its pre-eminent characteristic is its close association with the life of Yorkshire and with its industries, especially upon their scientific side. It is the second largest School of Agriculture in the United Kingdom and it is one of the greatest for Chemistry and Applied Chemistry in the world. Its departments of the science of the Leather industries and of the Coal Gas and Fuel industries are claimed to be unique.

The School of Medicine is in close association with the General Infirmary, Leeds, with its traditions of surgical skill. The students of the University are drawn from all grades of society, and their Alma Mater is particularly proud of the fact that such a large number of young men and women are of slender means, all its courses being open equally to male and female. Through the loyalty of the staff, practically the whole of the instructional work has gone on without a break despite the war.

The Professors have given valuable aid to the country in many directions, for instance, the preparation of anaesthetics, dyes, drugs, the recovery of toluene and benzene, and the testing and inspection of high explosives.

## THE UNIVERSITY OF SHEFFIELD.

## THE DEPARTMENTS OF THE FACULTY OF PURE SCIENCE BEFORE THE WAR.

The University Buildings in Western Bank, which were planned in 1902 and opened in 1905, quickly proved to be inadequate, so far at least as the space devoted to Pure Science was concerned. This arose partly from the fact that the training in Physics, Chemistry and Biology, required by medical students, and in Mathematics, Physics and Chemistry by engineering, metallurgical and mining students, for Degrees or Diplomas, is given in the departments of the Faculty of Pure Science, and, as the number of these students and of those registered in the Faculty of Pure Science increased, congestion began to make itself felt. To meet this difficulty the first step taken was the absorption in 1908 by the Chemistry Department of the Department of Botany, for which temporary accommodation was found at the expense of departments in the Faculty of Arts and the Faculty of Medicine. The second was the erection of a new wing in 1913-14 to provide enlarged quarters for Zoology and Botany and for certain medical subjects, which permitted a second and much larger extension of the Chemistry Department, and provided incidentally further accommodation for Mathematics.

Turning now to the development in the subjects included as departments in the Faculty. Following the course which has been found necessary in other modern Universities, the subject of Biology in 1908 was divided into the subjects of Zoology and Botany. In the same year a Department of Geography was established, and accommodation for it provided at the expense of departments in the Faculty of Arts, thus increasing the difficulty under which that Faculty carried on its work. In 1913 the Sorby Chair of Geology was founded out of funds left for the endowment of the Chair by the late Dr. Clifton Sorby, F.R.S., who played so conspicuous a part in the scientific development of the metallurgical industry in Sheffield. Owing to the shortage of accommodation at Western Bank, even after the promotion of the new building scheme, the Geological Department has been housed temporarily in the central block of the Applied Science Building in St. George's Square. By appointing a distinguished Cambridge geologist to the Chair, the University looked forward with confidence to playing no inconsiderable part in the investigation and development of the great Yorkshire coalfields.

From this rapid summary of the position before the war, it will be evident that the growth of the Pure Science Faculty outstripped the expectations of those who, when the original plans for the Western Bank buildings were sanctioned by the Council, were thought to be unduly optimistic about its prospects. During the nine-year period 1905-14, the Pure Science Faculty has been brought into a position not only to afford training for its own degree and post-graduate students, but to meet the actual and prospective needs of the Schools of Engineering, Metallurgy and Mining, consequent on the large extensions and on the introduction of new technological subjects, such as Non-Ferrous Metallurgy, at St. George's Square. No attempt is made in this brief statement to describe lecture rooms and laboratories in the Faculty, but an inspection—which is invited—will show that they are well equipped for the purpose they have to serve.

## AFTER THE WAR.

The war for the time being has shut down all these activities; the Honours Schools in Mathematics, Physics and Chemistry are emptied of students; and research work has come practically to an end, owing to the insistent claims of matters more immediately connected with the war. The Staffs have been depleted and women lecturers in many cases are replacing (temporarily) men who have gone into the Army, or put their knowledge at the service of the State in other ways. But by the wise policy of building extension, undertaken



less than four years ago, the Pure Science side of the University is now admirably equipped to meet any demands made on it, either by the City, which has so large a stake in the University, or by Industry now or after the war is over. Schemes have been arranged for the training of Chemical Engineers for which so great a demand exists at present, and of Research Chemists of a type now so urgently sought by firms engaged in the large chemical industries mobilised for war purposes. Moreover, a new Department of Technology, dealing with Glass, which it is hoped will become national in character, has been organised with the financial support of the Advisory Committee of the Privy Council for Industrial Research, of the Ministry of Munitions, and of the glass manufacturers of South Yorkshire on the one hand, and the University Council on the other. Suitable buildings for research work in Glass Technology are in process of erection; pending their completion this new object of University activity is housed in the Chemistry Department. Staff and students, as in the case of Leeds University, have been rendering splendid national work, either in the form of local anaesthetics (formerly exclusively made in Germany); the examination of optical instruments for the Ministry of Munitions, and a number of local problems which are increasingly sent before them by the trades and industries carried on in the surrounding neighbourhood. It would take up too much space to deal with all the activities of this University, but the Departments of the Faculty of Medicine are particularly important, since the work carried on therein is of great national importance, and the laboratories are exceptionally well equipped.

The Applied Science Department is housed in a separate building situated in St. George's Square, and here we find the two schools of Mining and Metallurgy; the buildings are admirably adapted, and fitted up on a generous scale for the advancement of these two sciences which are of such vital importance to the counties of Yorkshire and Derbyshire. At the present time, the ordinary work is practically at a standstill owing to the war, but nevertheless the building is busily occupied with important naval and military work.

We must close our record of these two northern Universities. The keen northern air of Yorkshire seems to have a vitalising effect upon its Universities, and the visitor is struck by the fact on entrance to any of the laboratories, although of course, at the present time the war has sadly depleted them, but at the dawn of peace both will surely become once more hives of industry, turning out men and women who will have a marked effect on the advancement of the industries of the Empire.

## HISTORIC BUILDINGS IN THE WESTERN WAR ZONE: THEIR BEAUTY AND THEIR RUIN.\*

By the Rev. G. HERBERT WEST, D.D., A.R.I.B.A.,  
Author of "Gothic Architecture in England and France."

(Concluded from last week.)

### FRENCH MEDIÆVAL SCULPTURE.

LET us now pass to what was the crown of beauty of French mediæval art—Reims.

The whole interior of the west wall is covered by seven rows of niches, divided by panels of most beautiful foliage and each containing a statue. The drapery of these figures is of the most masterly design and execution, with large ample flowing folds. The Communion of the Knight is sometimes called Melchisedek and Abraham, and I believe that is right, and that it was not ignorance that represented them as figures of the time, but the wish to bring home to the people the fact that the great teaching of God's Word is for all time. In our modern efforts to represent sacred scenes as they

were we often lose the spiritual lesson. In some of these figures, however, as in that of Joachim, there is an exaggerated inclination to bend and turn the figures.

The whole exterior was an inexhaustible mine of glorious sculpture. On the buttresses of the apse are figures of adoring angels, all different, invariably beautiful, graceful in attitude and noble in proportion, young and gracious, with a calm and holy joy, intelligent, delighting in their work; and the great statues in the buttresses on the south side are not less admirable. By the rose on the north transept is a charming Eve. She appears, however, to have made a pet of the dragon which she is carrying and stroking. But the west front is the glory of Reims. On the centre porch, the artist has given his figures a life and interest as well as beauty not found even at Amiens. They are combined in groups—the Annunciation, the Visitation, the Presentation. The way in which they turn to each other has in it much of the graceful action of intimate home life. In the Annunciation the angel is turning with extreme grace to the Virgin, and in the Presentation the venerable Simeon is stretching out his arms with gentle kindness to receive the infant Christ. The drapery again is masterly in its contrast of grand "sweepy garments vast and bold," with delicate folds on other figures, such as the aged Elizabeth. The northern portal is hardly less fine: the two angels on the left-hand side nodding confidently to St. Nicaise between them were delightful. Now, alas! they are ruined for ever.

The centre gable represents the Coronation of the Virgin, the northern one the Crucifixion, but both were badly restored in the eighteenth century.

In the north transept are two doors. On the centre one we have the life of St. Nicaise, beheaded by the Vandals, with his sister, St. Eutropia, at his side and on the left, kneeling carrying his head, with an angel censuring, and another behind. The whole scene is quite perfect in design and execution.

I propose now to take two subjects and sets of statues and trace them down through the centuries as represented in French sculpture—the Life, Death and Coronation of the Blessed Virgin and her statues; the Last Judgment and the figures of our Lord.

At Senlis is the earliest representation of the complete legend of the Coronation. The Apostles who were dispersed through the world suddenly felt themselves drawn together by a mysterious force which brought them into Mary's room where she lay awaiting death. In the third hour of the night Christ came with sweet melody and song, and in the morning her soul issued out of her body and fled up in the arms of her Son. After the burial of the body the Apostles watched by the tomb three days. On the third day Christ, with a multitude of angels, came to raise the body of His mother, and her soul came again. Thus at Senlis and Notre Dame we see the angels, trembling with reverence, gently bear up the body, which is too sacred for them to touch, on a long veil. Then follows the Assumption, and when borne by angels Mary reaches heaven, Christ seats her on the throne at His right hand and places a crown on her head.

At Laon we have an almost similar but inferior treatment of the same subject, probably copied from Senlis.

Next comes the south doorway of Notre Dame, which was in the old cathedral and replaced, slightly altered, when the cathedral was rebuilt. It is of late twelfth century date. When rebuilt it was raised and a new lintel added. It gives the history of St. Anne and St. Joachim, but a good deal mixed up with that of the Virgin and St. Joseph. Above is the Virgin enthroned, with the Child on her knees. Very Byzantine in character, she is seated, and the Child, standing on her lap with His hand upraised in blessing is the chief and most conspicuous figure. On her left is a king, probably Louis VII., father of Philip Augustus, kneeling. On her right a bishop, standing, probably Maurice de Sully, the founder of the present church. The elongated figure on the pier is St. Marcel.

\* The last of three Fothergill lectures delivered before the Royal Society of Arts.

The later north door, the Virgin's door, is perhaps the most perfect work left us by the thirteenth century. On the centre pier is the figure of the Virgin restored, but from the original which had been preserved at St. Denis. She stands on the dragon, with Adam and Eve and the Tree of Knowledge. Above her head is the Arch of Alliance, a name given to her in many mediæval litanies, as she is the link between the old and new dispensations. On the lintel are three prophets, who foretold her coming; three kings her ancestors, on the left; on the first four voussours, angels censuring. On the second tier comes her resurrection, treated as at Senlis. Two angels, trembling with reverence, lift her from her tomb and bear her gently on a veil; Christ, standing by the side of the tomb, is calling her to Himself, and the pensive Apostles meditate on the mystery. Above is an angel placing a crown on her head, and Christ with His hand raised in blessing. The attitudes are perfectly natural and graceful, the faces expressive and calm.

As a rule, the Blessed Virgin Mary is treated as a Queen throughout the thirteenth century, and all the emblems which are given her are those of majesty and mystery; she stands on the Burning Bush at Chartres, sits beneath the Arch of Alliance at Paris, and carries in her hand the rod which budded. But gradually this idea seems to remove her too far from sinful men who needed help. At Amiens, in the older of the two statues, she is carrying the Child on her left arm like an ordinary baby, though He holds the sphere in His left hand and is still blessing with the right; she is less the queen than a noble lady holding out her right hand as if granting a request. The other statue, the *Vierge Dorée*, is a charming mother playing with her Child, Who is looking at her, not out on to the world; the sphere has become a ball held in both His hands. This is perhaps the finest of all the statues of her—the modelling of the head is perfect, the hands beautifully carved, the draperies grand in their broad simple folds. A little later, as in the *Vierge de Riom*, the idea of divinity seems almost to have disappeared in the laughing mother playing with the lively romping Child, and later still she becomes simply the young girl-mother looking lovingly at her little swaddled baby, as in the Virgin of Autun.\*

Yet, at the same time, the sense of the infinite suffering of the mother of the Lord was growing, and on the remains of the eighteenth century choir screen of Chartres, in the scene of the Nativity, she is represented leaning over and timidly touching the Child Who is laid, not in a manger, but on an altar in front of her. In the scene of the Presentation the dignity of the whole group is very striking, and the exquisite expression in the hand of Joseph guiding her from behind makes one feel more angry than ever with the barbarism of the eighteenth century clergy who broke up this masterpiece and used it as paving stones.

Later still, in the fourteenth century, the time of the Hundred Years' War, the Jacquerie and the Black Death, life became unbearably sad, and the mother of the Lord became the *Mater Dolorosa*, Our Lady of the Seven Dolors, the Martyr of Martyrs. So in the last great works of French sculpture, the fifteenth-century groups at Solesmes, melancholy is the prevailing expression of all the faces, exquisitely beautiful but full of heart-rending grief.

Let us end by seeing, in a similar way, how the thought of judgment and the idea of the Saviour passes away from the terrors of the Apocalypse to express the divine love of the infinitely sad Saviour of mankind. At Autun the Christ who presides at the Judgment is not yet "The Son of Man." By His side is an angel weighing the souls, and a devil waiting for the lost, while an angel with a large sword keeps them off from the elect. In the lintel is the Resurrection, the saved clothed and looking up to heaven, the lost naked and

weeping. Above, an angel is passing the souls of the blessed, one by one, through a window into a palace which represents Paradise. Barbarous as it is, it is full of life and dramatic feeling.

Laon, a later work, is crowded and confused and much less vigorous; but here for the first time Christ is not only the Judge but the Saviour, showing His wounds.

The door of the north transept at Reims shows an immense advance. The figure of the enthroned Saviour is solemn and grand, and the drapery truly antique in its arrangement; St. John and the Blessed Virgin Mary on either side are raising their hands in humble supplication, and two angels with emblems of the Passion are kneeling behind them. The Resurrection of the Dead is depicted in two strips of relief with such life and variety that the twenty-nine little figures, in different and often very naive positions, express at once, with the utmost skill and perfect reverence, the act of raising the coffin lid and clambering out of the tomb, and at the same time astonishment, fear, pious resignation, and earnest prayer. Below are seated figures of blessed saints on the right of the Saviour; on the left the lost—partly destroyed. Below again, the lost souls are being dragged away by Satan, and the saved souls being presented to Abraham by angels, two of whom, in the most delightful way are presenting two souls on a pair of napkins.

But finer than this in its original state was that at Paris. The lintel is modern, but the rest, though restored, is the original work. The expressions, especially the terror and despair of the lost, are very finely rendered. In the upper part is Christ, showing His wounds; the two angels with the instruments of the Passion, the Virgin, and St. John on their knees. The grouping of the figures at the top is perfect. Christ, larger than the others, is in the centre, two angels stand by His side holding the implements of the Passion, and the kneeling figures of St. John and the Virgin fill the corner spaces; but the most wonderful thing is the filling of the tiers of arches. Note the calm and breadth of the work, especially of the angels, and with the heavenly calm of the blessed contrast the rush and whirl of the other side. Note especially the horseman of the Apocalypse, famine, and, most of all, Death. He who rides on the pale horse is here shown as a woman with blindfolded eyes. She has leaped in front of a man and stabbed him with a huge knife, so that he has fallen backward over the horse, dead and limp, while she, clinging tightly to the creature's neck, is making him rush on with outstretched head in an agony of terror.

True as the Judgment scene of Amiens is, it is confused and crowded, and does not come anywhere near the simpler beauty of that of the north transept of Reims, still less to the perfection of Paris. One alteration in particular is far from being an improvement on either. At Reims the two angels and St. John and St. Mary are all kneeling; at Paris the angels are standing, and St. John and St. Mary are beyond. It did not seem right for the angels to be kneeling in the former, and the two intercessors seemed too far removed from the Judge in the latter. So the sculptor of Amiens placed them with outstretched arms on either side of Christ that their intercession might be irresistible. The innovation was affecting, but not happy from the point of view of art, for it was necessary to reduce the height of the angels to get them within the arch, and the result is a straight line, instead of the pyramidal arrangement which was needed to fill the triangle.

Here, first, we have the figure of St. Michael prominent. He weighs the good actions of the soul waiting by his side in one scale, its sins in another. But here, to teach the lesson that it is salvation by Christ and not man's own good works that save him, the Lamb is in one scale, in the other the head of a demon, while another demon is trying to push up the good scale.

That which is usually reckoned as the finest is the great west door of Bourges, but it has the fault of Amiens

\* In the collection of M. Rerolles, to whom I am indebted for a photograph.

of being too crowded. The St. Michael is a charming figure, and so is the whole group of the elect making their way to the Gate of Paradise where St. Peter is sitting, representing the Church which alone has the power through the Sacraments to admit men to eternal life. Here, as at Amiens, the first to enter is a Franciscan with his triple-knotted cord; the next, a king carrying the flower of a saintly life, St. Francis of Assisi, and Louis IX., slender as a knight and beautiful as an angel, who had just died. This tendency to confusion goes on increasing. We see it in the Cathedral at Rouen, and still more at St. Maclou, where, however, there is a marvellous piece of imagination described by Ruskin in the figure of the flying angel driving the lost before him, right out of the tympanum into the niches which are represented as all on fire, with a little demon in the roof of each grinning down on the lost soul below.\*

Never was the soul of a people so revealed as in the great cathedrals of the Middle Ages and their marvellous sculpture. To the men of the time they spoke with a thousand voices. In them the creative power of the artist made a garland of all living things to adorn the house of God. Plants, animals, all these beautiful creatures that awaken curiosity and tenderness in the heart of the simple and the child, there grew beneath his magic touch. And there was given the key to the riddle of life, its conflict, its struggle with Nature through the labours of the months, the constant battle in the heart of every man between the evil and the good, the teaching of the prophets, the salvation through Christ, the final Judgment, and to those who have fought a good fight the angels of the heavens above hold out crowns. Conviction and faith pervade the cathedral from end to end and tell their story with a thousand tongues. Even the wisest of us moderns must hear some echo of those silent voices, see some of the wondrous visions which they saw and left carved in the stone for us to learn by.

Just a few words of that lesson I have tried to set before you in hope that you may dip further into the deeper thoughts which lie there. You will have noticed the steady change which takes place in the representations of the Blessed Virgin, of the Last Judgment, and of our Lord—how from being only the Queen of Heaven crowned by her Son, she becomes the Majestic Matron, then the Human Mother rejoicing over her Child; in the fourteenth century the Mater Dolorosa; and, finally, in the fifteenth century and in Italian Pietàs the desolate widow carrying the dead body of Christ. In the Last Judgment, and in the figures of our Lord, the stern Judge of the Apocalypse of Autun becomes the Christ showing His wounds of Laon, then the severe but pitiful Saviour of Chartres and Amiens, and the purely loving and gentle Beau Dieu of Reims, which is a work of such beauty that it may reckon as the most perfect of the most perfect period of mediæval art. It shows admirable understanding and execution of the whole form in faultless proportions, and there is such beauty in the mild calm expression of the face, that it is even finer because stronger in expression and attitude than Leonardo da Vinci's.

But gradually, as in the case of the Blessed Virgin Mary, the figures grow sadder, and later the Saviour is generally represented on the Cross, as His Mother is with His dead body on her knee. But, as a transition to that, the last stage, one of the most beautiful but saddest figures of the Saviour that I know is at Troyes. What is the secret of all this? I think it is this. When the Roman world was crumbling to pieces, St. Augustine bade the suffering people look up from the perishing City of Man to the eternal City of God. They needed the assurance of the justice of God overruling the injustice and cruelty of man, that there was a divine and lasting order over and behind the shifting anarchy of the world. So the idea of the great Judge and trust in the stable organisation and all-embracing knowledge

of the Church were what appealed to them most. The answer to that appeal was given. That is what we find in the earlier work, in the all-embracing encyclopædic sculpture of the Church, and in the great picture in St. Croce of the Feudal Empire and the Church ruling the world side by side.

But as the world settled down and life became orderly and joyful once again, and the tenderer, womanly side of human nature was able to show itself, the love of the Virgin Mother and of the Saviour wounded for our transgressions were what found the readiest echo in the hearts of men and women. But with the fourteenth century the joy of life was clouded over again, and the sadness of the Mother for the dead or dying Son became the pity for which each individual soul was crying out, and the sorrow of the Crucified One was most in touch with the sadness of man—men no longer wanted to point, Lo here or Lo there is the orderly Kingdom of God; each man wanted to feel for himself the Kingdom of God was within him, and to have the Saviour for his very own. It was in answer to that sense of personal need that the great upheaval of the Reformation came about, and the outward material message made visible in the beauty of art became the inner invisible spiritual voice speaking in the soul of every man.

### AN AFTER-THE-WAR POLICY FOR PUBLIC UTILITY SOCIETIES.\*

By MR. EWART G. CULPIN.

OUR Public Utility Societies were represented in an important deputation which recently waited upon Mr. Walter Long in regard to housing after the war. Naturally it was but a part of the deputation, and the claim of the public utility societies as against public or private action was naturally not raised, and no reference was made to our work in the President's reply.

It is therefore necessary that we should consider the future from our own point of view and see if we ought not now to make some definite bid for increased recognition and for improved facilities. We ought to make it understood that we stand for a definite phase of housing reform, which is neither municipal work nor private enterprise; that we combine the good points of both these and that we avoid some of the pitfalls of both; and that while we may at the same time be creating new possibilities of difficulties, we are at any rate alive to them and ready to meet them.

It seems to be agreed that the housing of the future will not be undertaken by private individuals unless there are very drastic alterations in legislation, both as to taxation and financial assistance, and it has been taken for granted that the only alternative to this is housing by local authorities. We have only to look at the figures of the number of houses provided by local authorities and by public utility societies during the past ten years to see that the new form of housing which we advocate is rapidly overtaking municipal enterprise.

There is a more serious question. It is not everybody who is agreed upon the desirability of municipal housing, and, whatever may be our own opinions, we have to face this fact and to realise that municipal housing has been on many occasions—and probably will be on many more occasions—the subject of the rough and tumble of municipal elections, and for this purpose statements are made on both sides which sometimes have to be justified later on, to the detriment of housing schemes. That being so, it is the first argument why we should adopt a method of building and development which will not antagonise the opponents of municipal action.

Secondly, except in a very few cases, municipalities are not ready to proceed with housing schemes. After the battle of the booths a scheme has to be thought out in

\* Ruskin, "Seven Lamps of Architecture."

\* A Paper presented at a conference of the Central Committee of Public Utility Societies organised by the Garden Cities and Town Planning Association at 3 Gray's Inn Place, W.C.



committee and in the council chamber; land has to be found, staffs engaged, plans drawn, and contracts entered into before a brick is laid. On the other hand there are some thousands of acres of land under the control of public utility societies at this moment for which plans are prepared and upon which houses can be erected directly money, materials, and labour are available. It is too often the case that in regard to municipal housing schemes, owing largely to the disputes which are engendered, they are often either ill-matured or too slow in operation. Public utility societies consist, as a rule, of men who have given this subject special study, who have proper schemes and proper plans ready.

I suggest that municipalities can best help this work by securing land and forming roads, as has been done by Birmingham and Hereford, under Section 5 of the Act of 1900. The land can then be leased to public utility societies, and if, as suggested later, increased powers are given for them to take part in the financial working of these societies, there are few parts of the country where work could not proceed.

Another reason why public utility societies will be in many instances better able to cope with the housing work than the municipality unaided is that as soon as peace is declared the municipalities will have an enormous amount of work to do. Schemes of urgent necessity which have been hung up in consequence of the war will have to be proceeded with; and again, it may be necessary in many places for relief work to be started, and municipalities should be at liberty to undertake definite relief work which will not require so much preparation and elaboration as would a housing scheme. I think we can lay it down as definite that housing which is carried out as distress work is likely to be distress work first and housing second, and, so far as we are concerned, we cannot agree that this is the proper state of things. Where housing is required it should be provided entirely irrespective of the unemployment question. We should press always for what has come to be known as the Garden City standard of housing, which we may roughly, for this purpose only, define as follows:—

(a) A definite lay-out plan must be provided capable of inclusion in a town-planning scheme, with due regard to open spaces and local amenities.

(b) The number of houses to the acre must be strictly limited, bearing in mind the circumstances of the neighbourhood.

(c) The work should, as far as possible, follow the Garden Suburb type on the outskirts of towns.

(d) Pending the adoption of a town-planning scheme the by-laws relating to roads and buildings be suspended in regard to those clauses dealing with width and character of roads, height of rooms, space about buildings, &c., which prejudicially affect economical building and road construction—provided always that the structural and sanitary efficiency is in no way impaired by any such variations or suspensions.

But possibly the chief point where the public utility society will prove its superiority to either municipal schemes or private schemes is in regard to the social side, and this will be still more evident in rural schemes than in urban. It cannot, however, be neglected as a feature of suburban development, because I am certain that the lack of local patriotism is a very serious hindrance to civic development and to the fostering of a real civic spirit, while in rural areas the spirit of co-operation engendered by any such scheme of housing is likely to foster the growth of that "life" which we all agree is so essential for the future of our rural areas. The public utility society, with its village hall or its institute, is lifting housing on to a different plane. Man cannot live in bricks alone, and the development of the love of the real things that count can only be fostered as there are adequate facilities for mutual intercourse and common endeavour.

It is apparent that to do all this it may be necessary for a greatly increased amount of propaganda and for the

existence of a central society sufficiently strong financially to undertake the formation of societies and of sufficient standing and commanding sufficient ability to be able to act as a supervising and advisory body. Essentially this society must not be a trading concern, and I consider that one of the first things required to enable this work to be carried on is a moderate State grant to some organisation which could undertake this work. The functions of this suggested body would be many and varied, but if we are right in some of our surmises it will be necessary to have such an organisation, to which not only can individual societies turn for advice and assistance, but to which governmental departments can refer for particulars as to the standing and character of societies. Roughly, we have agreed upon a policy for future work, and without going further into argument I would briefly recapitulate this:—

#### Land.

1. Increased powers to enable local authorities to purchase and to own land, to develop it and to lease it to public utility societies for the erection of dwellings.

(a) Land compulsorily acquired as well as land acquired by agreement to be available for leasing.

(b) Land to be available for all classes of property.

(c) Land leased to public utility societies for periods of 999 years (or "not less than 99 years") at ground rents which will be sufficient to cover repayment and cost of administration in 80 years.

(d) Local authorities to have first option to purchase property when a public utility society is dissolved or it desires to sell all or part of its land.

2. Public utility societies to have power through some body charged with the duty to acquire land compulsorily for housing and town-planning purposes.

#### Municipal P.U.S.

1. Local authorities to have increased facilities for investing in funds of public utility societies.

2. Co-operation with private investors and tenants to be effected in the following ways:—

(a) By purchasing and developing land and leasing it to the societies on favourable terms—80 years repayment.

(b) By investing in funds of societies and making loans to them. This may be done in the following manner:—

(1) Local authorities to borrow from Government on favourable terms on security of rates.

(2) Local authorities to be able to advance 80 per cent. by way of loan and invest not more than 10 per cent. in shares or loan stock or both.

(3) Remaining 10 per cent. to be subscribed by tenants and other local investors.

(4) Management Committee to consist of eight members, five elected by local authorities, three by tenants and investors.

#### Municipally Assisted Schemes.

Local authorities to have power to invest in societies not promoted by them up to one-third of the value of the property.

#### Finance.

Government money to be advanced on the following terms:—

1. Nine-tenths of total value by way of loan; repayment period, land 80 years, buildings 60 years, at lowest rate of interest conditional on Garden City methods being applied. Less favourable terms under ordinary conditions. Garden Cities Association or some such body to report as to whether schemes are satisfactory from Garden City standpoint. (It is also suggested that more favourable terms shall be granted to those societies where the tenant members share in the profits.)

2. Conditions of loan:—

(a) Societies to be conducted according to L.G.B. regulations.

(b) Periodical audit by public auditors.

(c) Definition of term "working class" to be extended to include all persons insurable under the National Health Insurance Act.

3. Above conditions not to be contingent on the existence of unemployment; the need for houses to be the main consideration.

### THE SOCIETY OF ARCHITECTS.

A SPECIAL GENERAL MEETING of the Society of Architects was held at 28 Bedford Square, London, W.C., on Thursday, October 12, at 6 P.M. The President, Mr. E. C. P. Monson, F.R.I.B.A., having taken the chair, the Minutes of the previous meeting, which had been printed in the Journal, were taken as read, and were confirmed and signed.

The Secretary announced three nominations for membership.

The Scrutineers' Report on the ballot for the election of officers and council 1916-17 was then received, showing the following elections:—

#### Officers.

President—Sadgrove, Edwin J., F.R.I.B.A., London.

Senior Vice-President—Scott, A. Alban H., M.R. San.Inst., London.

Junior Vice-President—Partridge, Edward J., F.S.I., Richmond.

Past Presidents (ex officio)—Hamilton, E. J., Brighton; Lish, J. J., Newcastle-upon-Tyne; Monson, E. C. P., F.R.I.B.A., London; Pridmore, A. E., F.S.I., London; Tubbs, Percy B., F.R.I.B.A., London.

Honorary Secretary—Sheffield, Noel D., London.

Honorary Treasurer—Pearson, J. Herbert, London.

Honorary Librarian—Taylor, Alfred J., Bath.

Delegate from South African Branch—Dowsett, S. C., Johannesburg.

#### Council.

Members of Council (London)—Adams, Henry, M.Inst.C.E., F.S.I.; Baines, George, F.R.I.B.A.; Bare, R. Geo.; Bowden, J. A.; Ellis, Herbert O.; Imrie, G. Blair; Inglis, T. Stewart; Jackson, Charles E.; Leslie, Col. F. S., R.E. (Ret.); Moscrop-Young, F. C.; Paine, George H.; Tucker, B. R.

Country.—Beaumont, P. M., A.M.Inst.C.E., Maldon; Cancellor, B. D., Winchester; Cratney, Edward, F.R.I.B.A., Newcastle-upon-Tyne; Davies, R. Cecil, Chester; Dickens-Lewis, Geo. E., Aberystwyth; Gill, Harry, Nottingham.

There being no observations on the Report it was resolved that it be adopted and entered on the Minutes.

Mr. E. J. Hammond (Gillingham) proposed a hearty vote of thanks to the outgoing President, Mr. E. C. P. Monson, who had filled the chair for two years with remarkable success. Mr. Monson was a very busy man, and he held many other prominent positions, but he had given a great deal of time to the Society's affairs, and all that he had done had tended to its advancement.

Mr. B. R. Tucker (London) seconded the proposition, which on being put to the meeting, was carried with acclamation.

Mr. E. C. P. Monson, F.R.I.B.A., thanked the members for their expression of appreciation, and expressed regret that during his term of office the Society had been unable to accomplish much constructive work in co-operation with other bodies, as they had been met with the statement that contentious points could not be discussed in war time. He was of opinion that the present was eminently the time for the evolution of a constructive policy, inasmuch as the ordinary work of most professional bodies had been suspended owing to the war. He thought that as the tendency at the moment was for all classes to work in harmony for the common good now was the opportunity for the discussion of contentious matters so that the way might be cleared for a better

understanding when these questions were once more raised after the war.

He then invested the new President, Mr. Edwin J. Sadgrove, F.R.I.B.A., with the chain of office, and expressed the hope that during his term of office peace would be declared and the work of the Society taken up with renewed energy.

Mr. Edwin J. Sadgrove, F.R.I.B.A. (President), expressed his appreciation of the confidence of the members in electing him to the Society's highest honour, and said he would do his utmost to uphold the best traditions of the chair. Many of the newly-elected members of council were old colleagues of his, and would, he knew, share the anxieties and responsibilities of the position with him.

Votes of thanks were accorded to the retiring officers and members of the council, the scrutineers, and the secretary and staff.

The proceedings then terminated.

### TOWN PLANNING INSTITUTE.

(Concluded from last week.)

MUCH disappointment no doubt exists that so many of the schemes now being prepared are but developments providing a few new routes from town to town and widenings and improvements of existing streets around towns.

The towns themselves being already built up, with their shopping, pleasure, and civic centres complete and fully meeting the requirements of the population, in which the members of the local authorities are all financially interested, it is not to be expected that any countenance will be given to schemes providing new centres, and thus dividing up the business and consequently reducing the value of the existing centres. This state of affairs will check what the authorities call ambitious schemes involving expenditure to be saddled on the ratepayers and owners of existing property, which at the present time is considered sufficient for the purpose. There is thus no scope for development which would provide sites for important buildings in the majority of schemes.

It has to be remembered that the area of the schemes now being prepared averages about 1,500 acres, and consist generally of the only unbuilt-on land in the areas of the local authority, commencing at the limit of and surrounding acres of sameness in varying degrees of density and ugliness, and it is to prevent this unbuilt-on land lapsing into the same condition of sameness, density, and ugliness that the schemes are being prepared. And here, midst the disappointment and discouragement, are the hopeful signs in that there is ample room for making a scheme which shall be to the lasting good of the district. The old, crooked, narrow ways out into the surrounding country can be turned into boulevards—in miniature perhaps—but still with grass and tree-lined margins with good wide forecourts, in which respect there is generally no difficulty with the landowner, who, after the number of houses per acre is fixed, has nothing to lose and everything to gain by setting his house well back from the road, with all the present-day annoyances likely to arise from too close a proximity to a great highway.

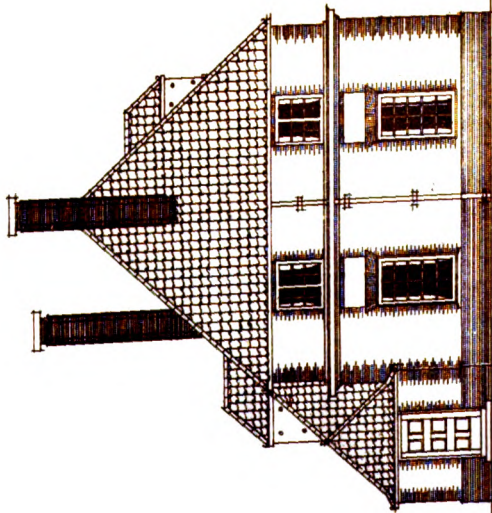
In other respects opportunities occur for definitely fixing both private and public open spaces to the advantage of both the owner and the general public—but here it is to be feared that many of the local authorities will refuse the burden of their upkeep, and that many lost opportunities may occur—the allocation of areas for business, manufacturing and residential districts by arrangements with the owners must work in their interests.

Provision for railway sidings—and, where opportunities occur for water carriage, of wharves—and in connection with the same roads of ample widths and easy gradients providing communication between sidings and wharves with business premises, are all proper to a scheme and in many cases being included.

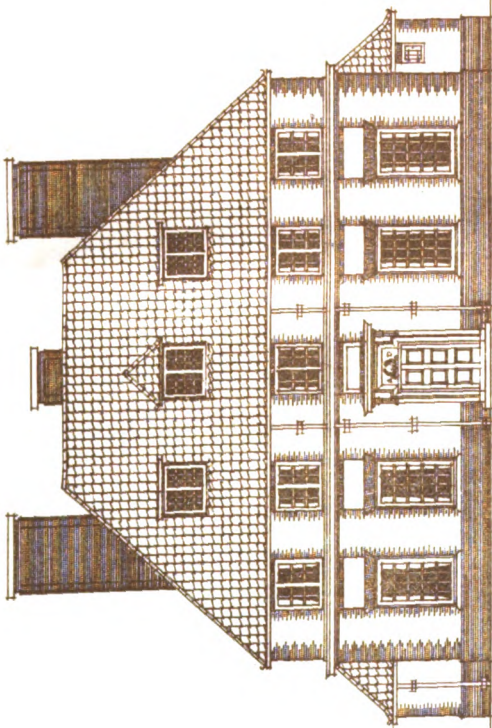
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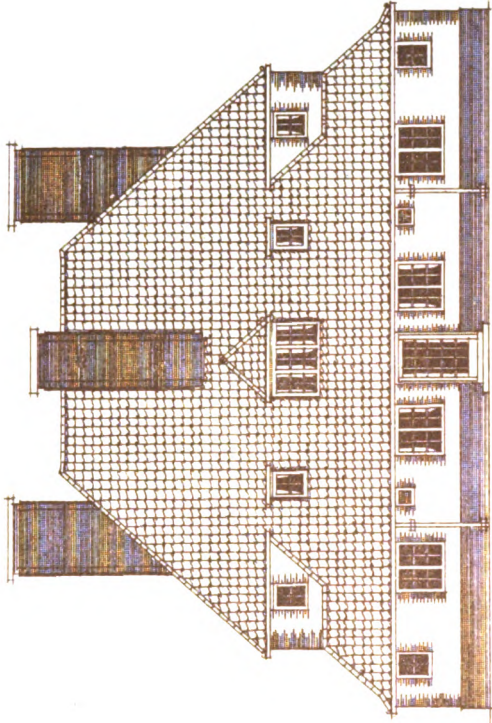




West Elevation



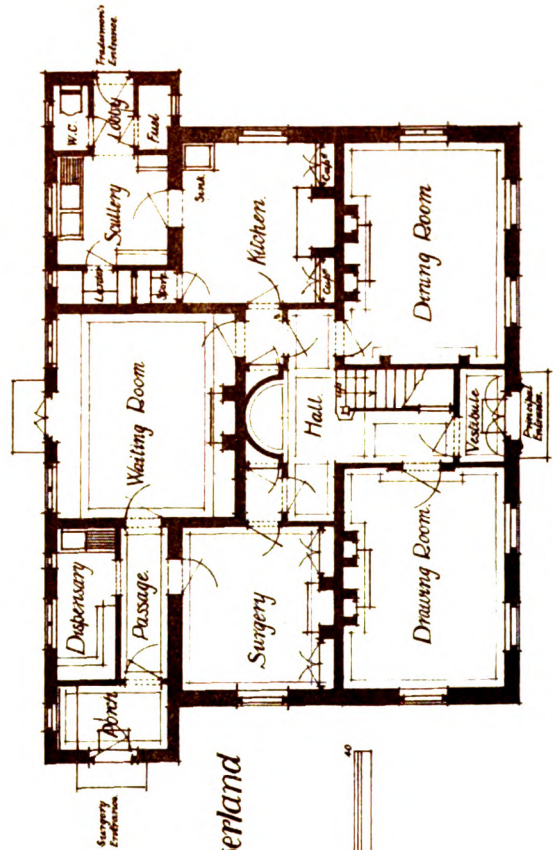
Front Elevation



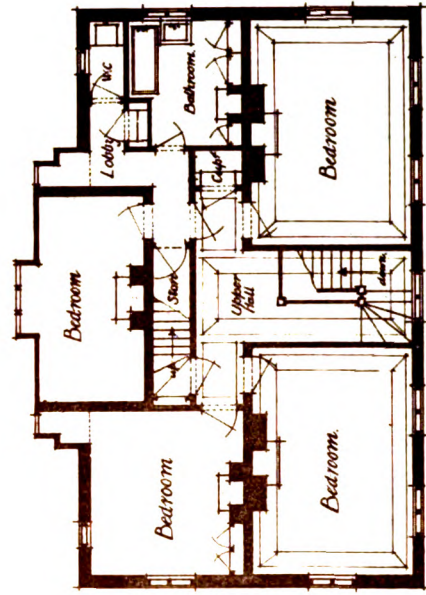
Elevation to Garden

PROPOSED HOUSE  
PERCY MAIN Northumberland  
for Dr. R. J. WEDNER.

Scale



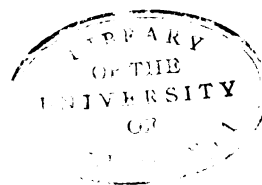
Ground Floor Plan.



First Floor Plan.

Edmund Chubb MSA  
Architect  
Westward-on-Tyne.

First Floor Plan



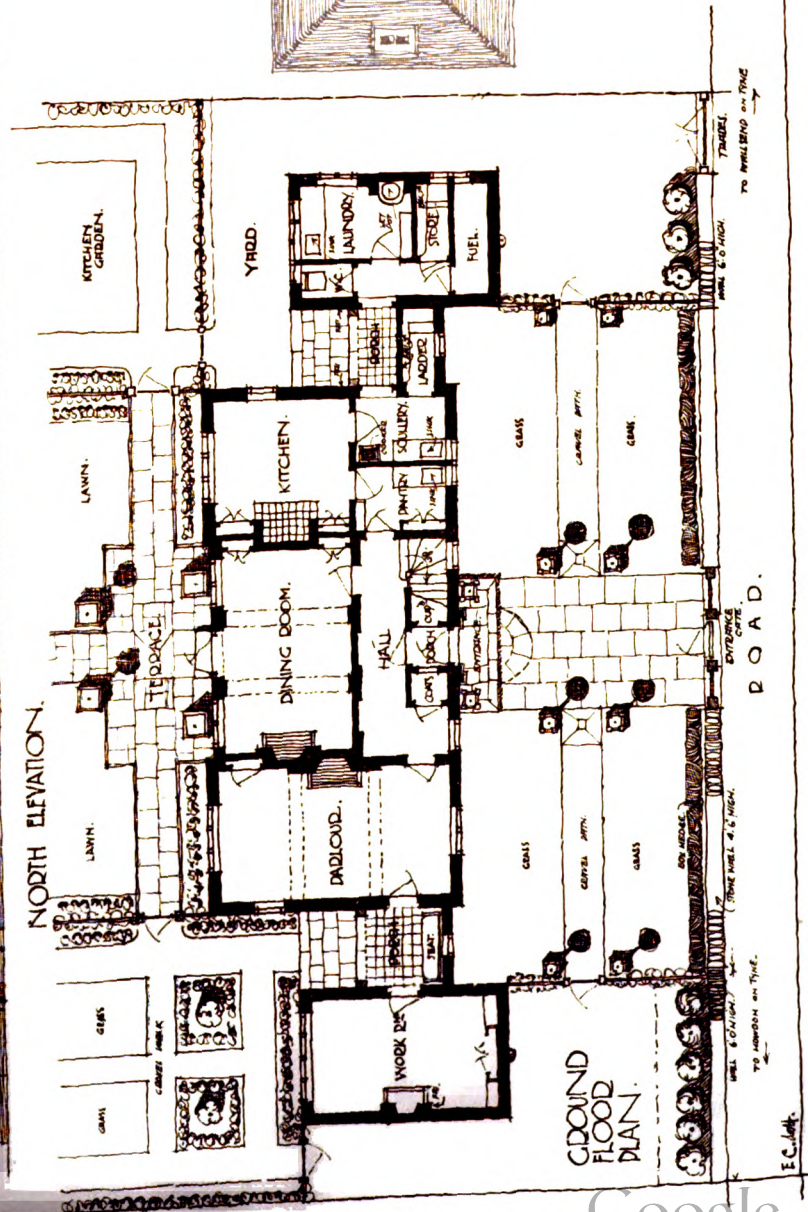


PROPOSED HOUSE  
WILLINGTON - ON - TYNE, NORTHUMBRIAND.

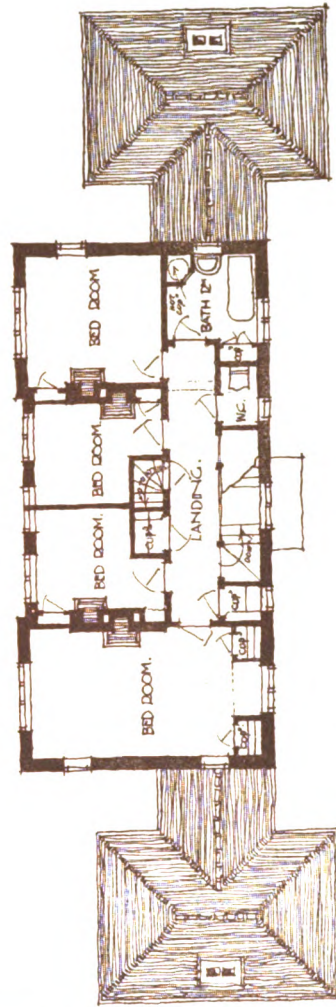


NORTH ELEVATION.

SOUTH ELEVATION.



GROUND FLOOR PLAN.



FIRST FLOOR PLAN.

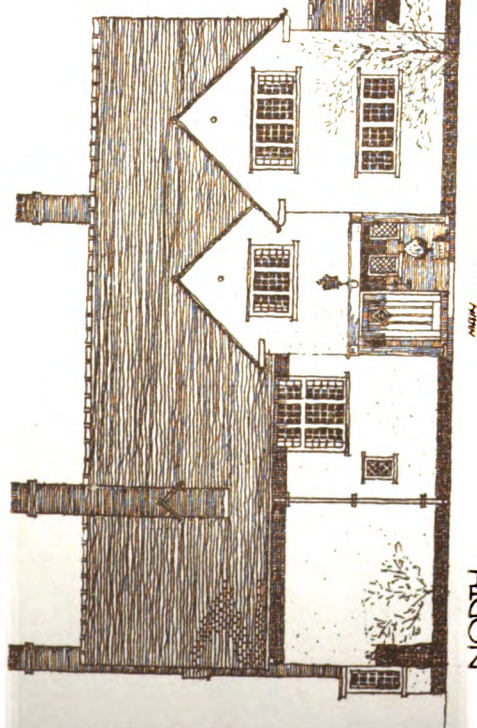
EDWARD CROFT  
WILLINGTON ON TYNE.

PHOTO-LITHO SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, BIRMINGHAM.

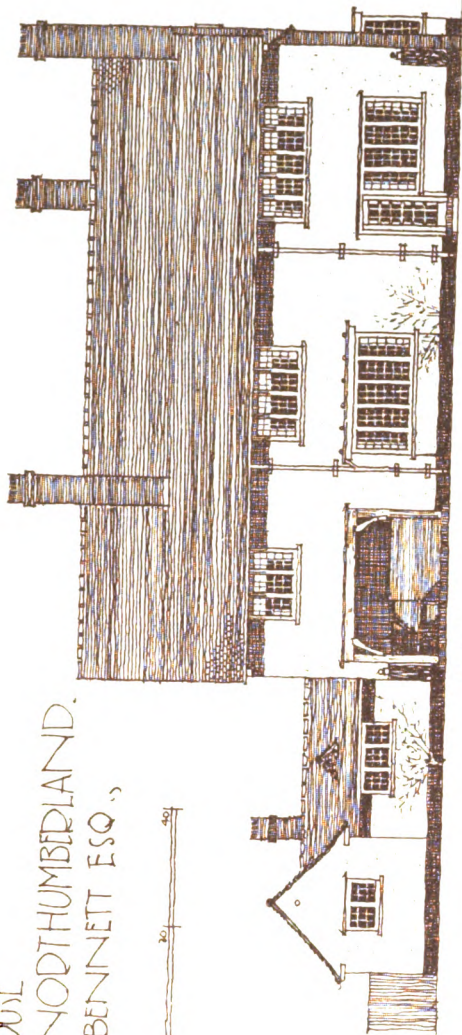


PROPOSED HOUSE  
STOCKFIELD NORTHUMBERLAND.  
for H. DILLON BENNETT ESQ.

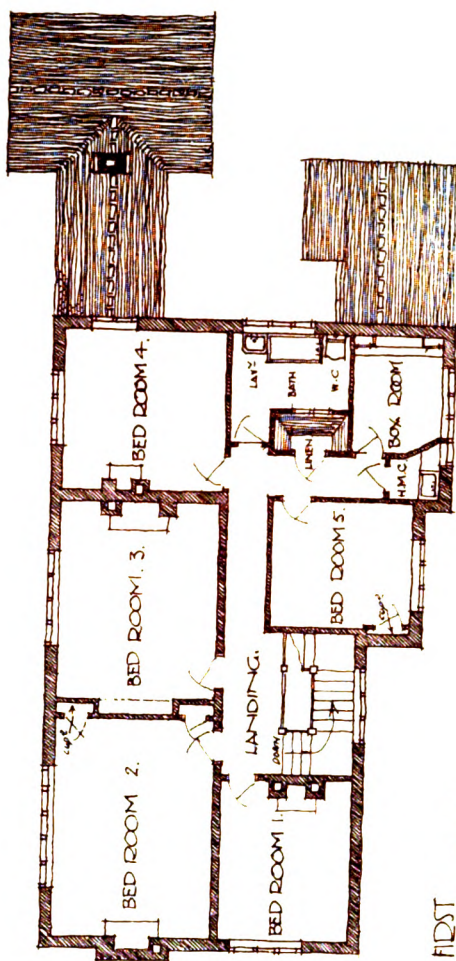
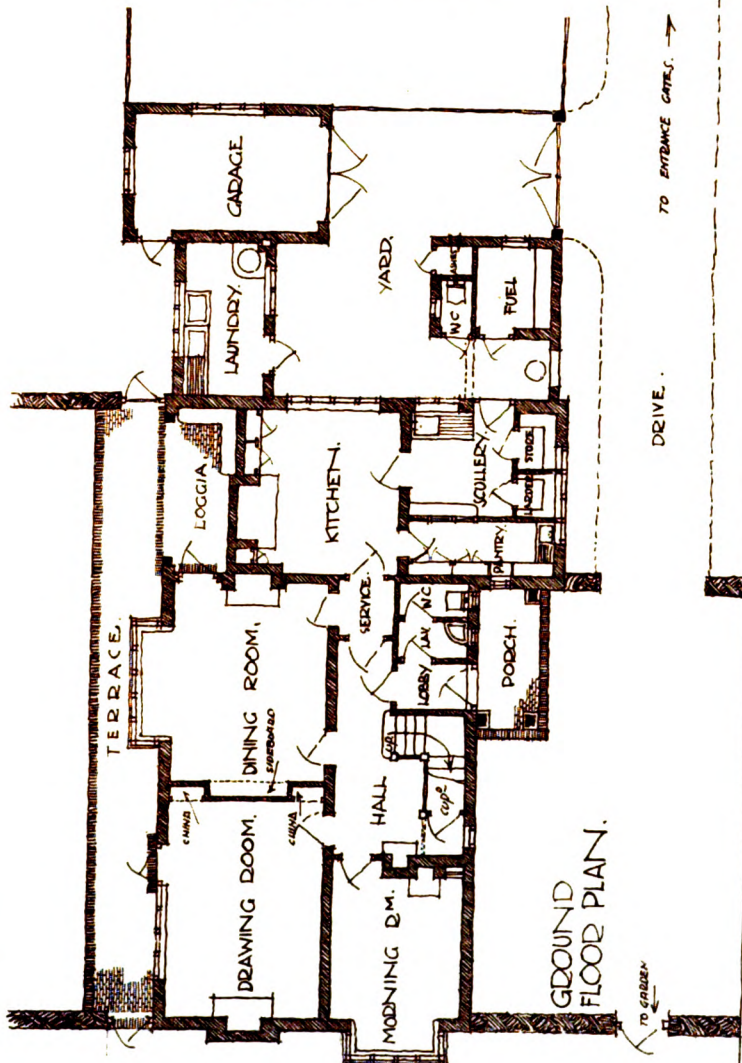
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NORTH  
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EDWARD GATNEY M.S.A.  
ARCHITECT  
WALSLEY ON-TYNE 1912.

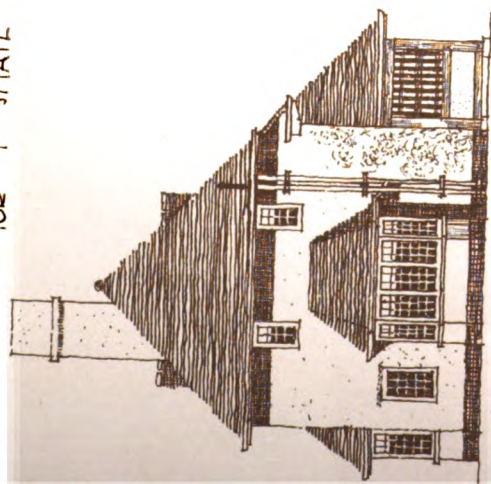
PHOTO LITHO SPRAGUE & CO. LTD. 69 & 70 DEAN STREET SOHO, W.



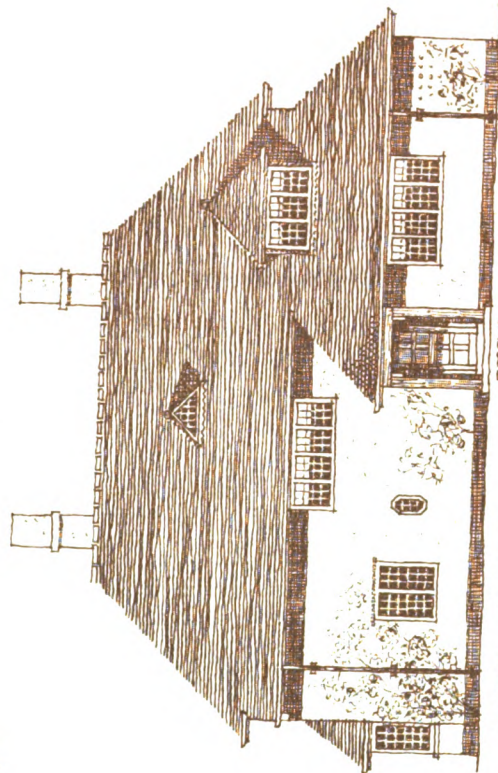


# COTTAGE WEST CALDER MIDLOTHIAN. FOR T. SMILE ESQ.

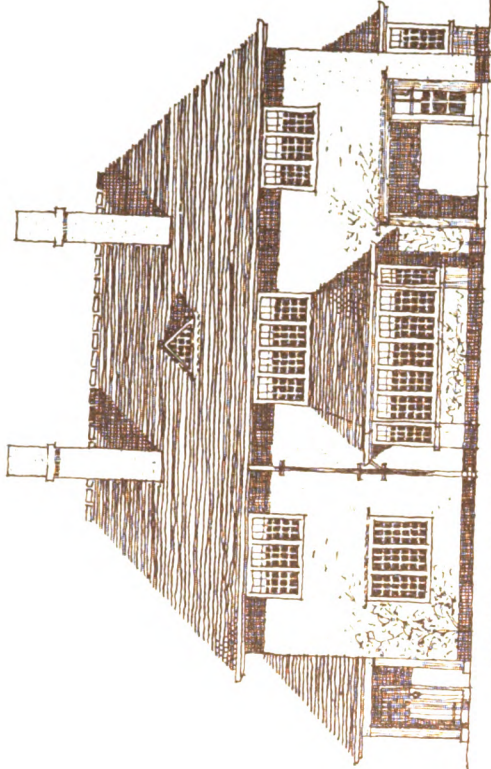
The Architect, Oct. 20th 1916.



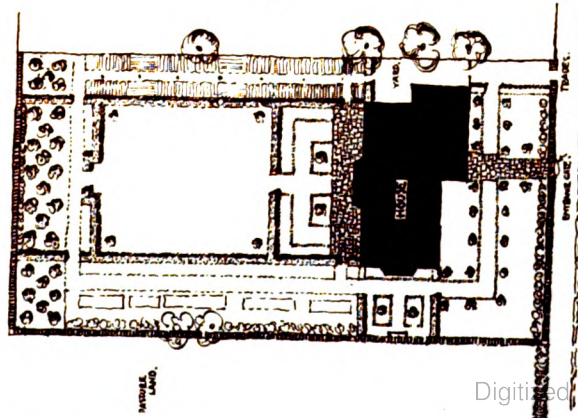
EAST ELEVATION.



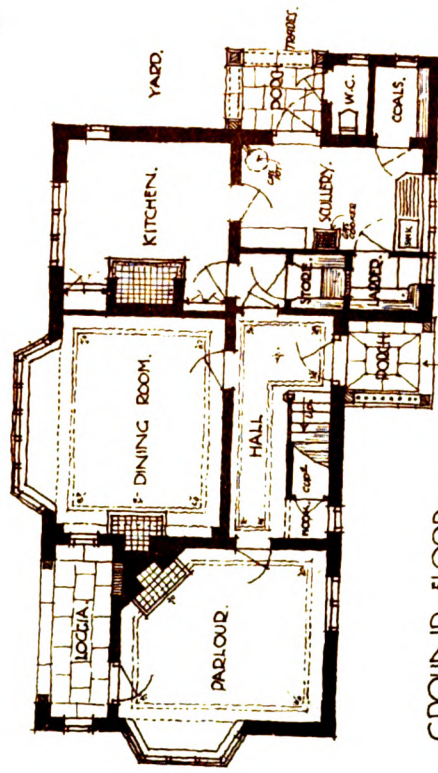
NORTH ELEVATION.



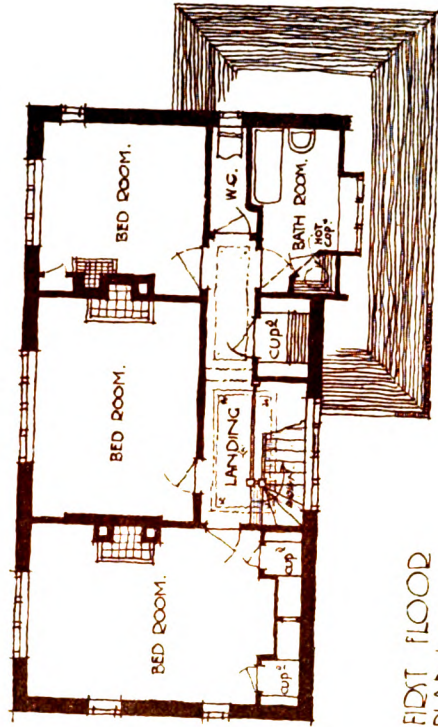
SOUTH ELEVATION.



SITE PLAN.



GROUND FLOOR PLAN.



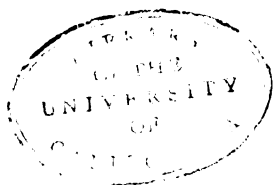
FIRST FLOOR PLAN.

EDWARD GUTHRIE, LONDON D.B.A.  
WALLSEND-ON-TYNE.  
1912.

PHOTO LITHO. SHARPE & CO. LTD. 65 & 70 DEAN STREET SOHO W.



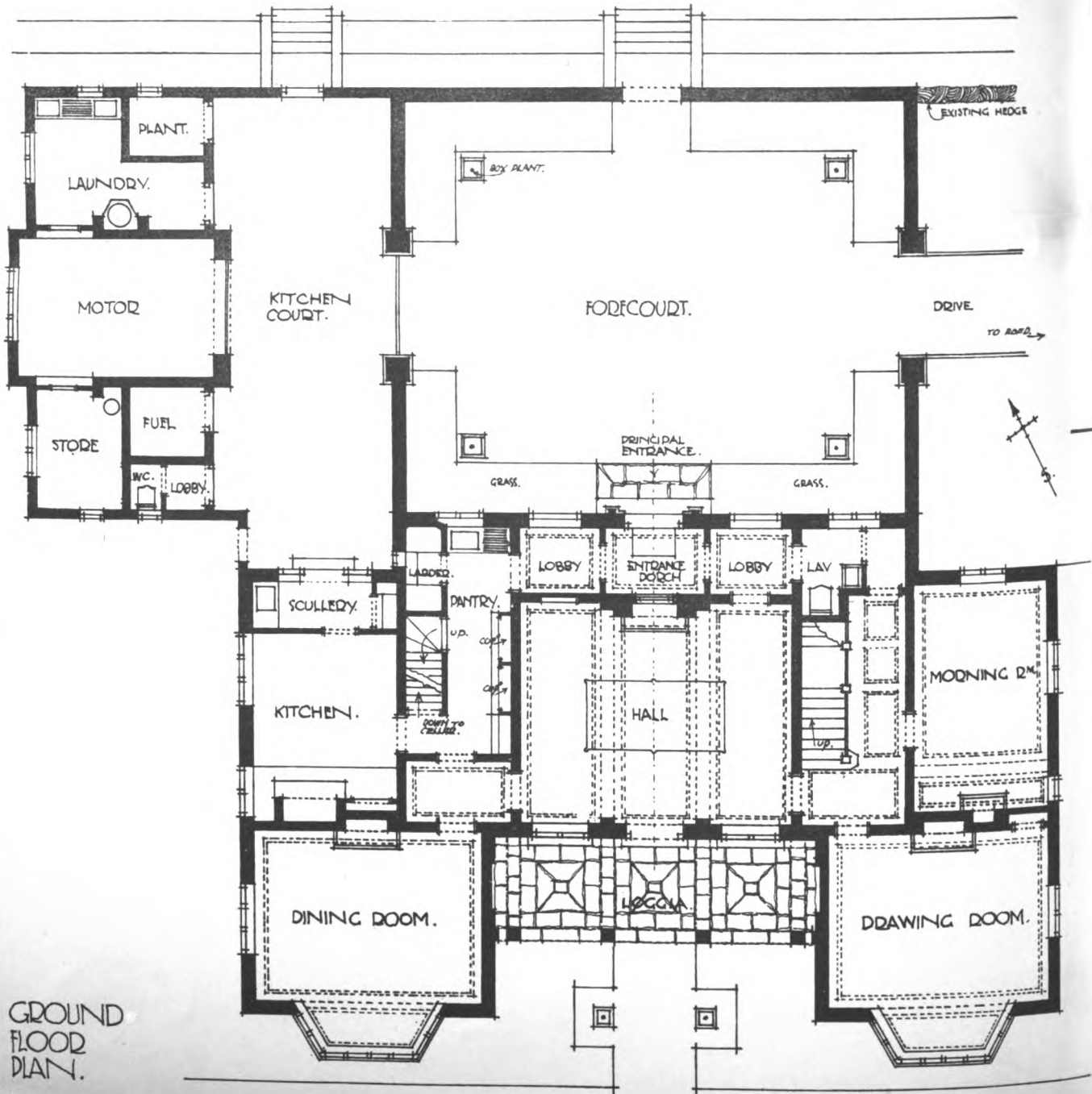






ENTRANCE FRONT

PRINCIPAL ENTRANCE.



GROUND FLOOR PLAN.

E.C.



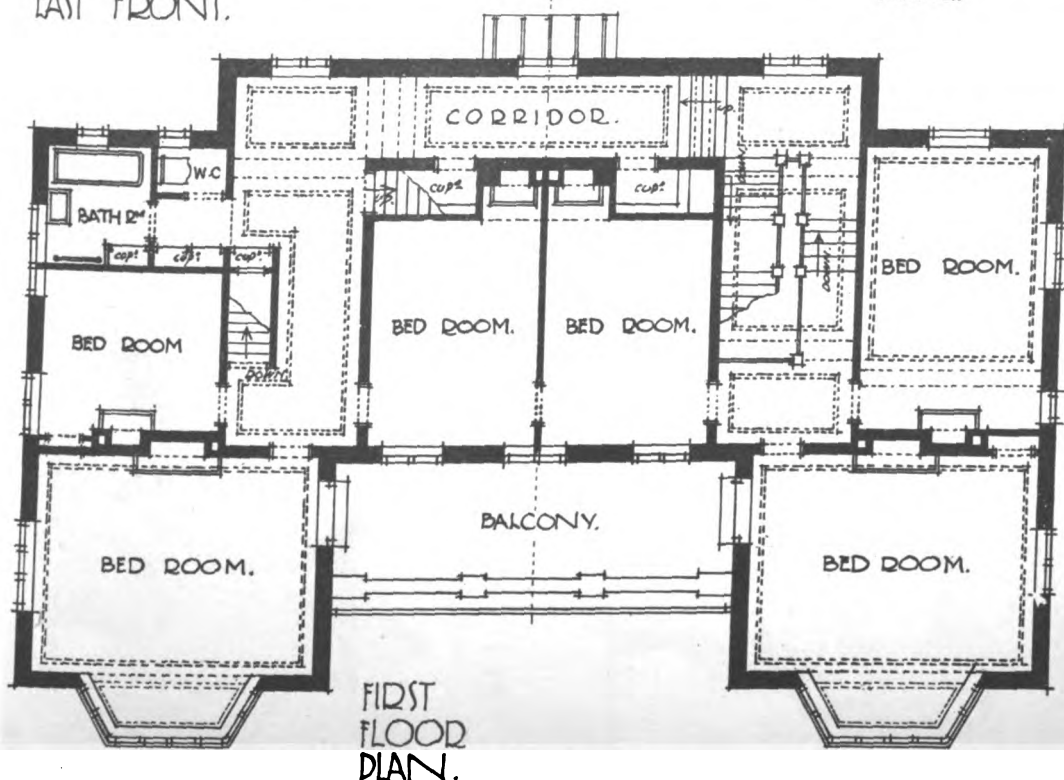
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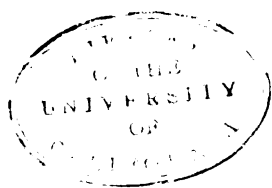
GARDEN FRONT.



EAST FRONT.



EDWARD COATNEY REA.  
ARCHT.  
WALSINGHAM ON TYNE.  
JAN 2 1913.



The revolution that the clauses of a scheme may be expected to work in smoothing the difficulties which the cast-iron rules of the by-laws insist upon, will be a great element for good by allowing concessions in road-making, changes in building materials, and in the provision for combined drains in place of every house having its own separate connection with the sewer, as is now necessary owing to the state of the law. It will give the landowner and builder financial consideration which will compensate him for the additional area of ground taken by the dwelling-house. Clauses regulating the elevations may, to a still further extent, be expected to assist the landowner and builder desirous of carrying out work on satisfactory lines.

The possibility of building works proceeding immediately after the war, and as to how the increased cost of materials and labour is to be met, will present great difficulties. The rise in the price of every item is very serious at the present time: timber is quite 100 per cent., iron and steel about 75 per cent., and there are very few items which have not advanced 20 per cent.; probably the average being in excess of 30 per cent. There is no hope that these prices will be at once reduced, and the man is very optimistic who expects them ever to reach the level of pre-war times. This will, of course, retard the progress of work, and, with working-class dwellings so much needed, will set up problems which will require considerable ingenuity to overcome. Whatever is attempted, it is to be hoped that a hard-and-fast standardised type of reinforced concrete building, which in some quarters it is urged will meet the difficulty and bring the cost to pre-war limits, shall not be adopted and made universal.

Concrete work, if executed in sufficient numbers to usefully employ the moulds, will produce buildings at low rates, and good working-class cottages can be constructed at 4½d. per foot cube; but the awful sameness will be equal, if not worse, than the work of the present time. Experiments, however, prove that it is possible to carry out the interior portions of a house in concrete, leaving the outside shell to be carried out with materials which more easily lend themselves to artistic effects. In this way interior partitions, chimney breasts, flues, floors, and some portion of roofs may be executed in concrete and make a great saving. With the floors and roofs it is necessary that the moulds shall be especially carefully constructed so that the underside shall be level and smooth, thus saving the plastering of the ceilings. Including the less height of the walls, the saving is quite 30 per cent. of a timber floor in normal times; concrete casement frames are also easily made, and by no means difficult to make watertight. In this way about £25 per cottage can be saved. Further reduction in cost can be effected by combined drainage systems. In developing an estate under town planning powers, with sixteen houses per acre a saving can be made of quite £80, or £5 per house, on what would have been the cost under the usual by-law regulations. The cost may thus in a fair computation be reduced by some figure between £30 and £35 per house on the average working-class dwelling.

Previously in these notes reference was made to the fact that some cities and towns were causing a town plan to be made, on which the local authorities were considering possible developments and improvements. It is not too much to hope that all local authorities will wake up to the really disastrous effects which overcrowding has, and that they will take steps on the same lines, keeping steadily before them such improvements as will clear out the insanitary, unhealthy warrens which have been allowed to be constructed. Perhaps a Parliament alive to its duties will one day declare that the creators and owners have no vested interest, and that in what are now densely populated slums some green and open spots may appear.

When this is done there will still remain the awful pall of black smoke which overhangs our large cities and manufacturing districts, covering not only the buildings with its soot, but the vegetation, hindering proper growth

and development. The agitation which has been going on for some time, that was expected to rid us of the nuisance, seems to have had very little effect. The consumption of coal in the most wasteful manner still goes on in private house and factory, evidenced by the numerous chimneys belching forth huge volumes of smoke.

It has been hoped that long ere this electricity would have taken a position which would have delivered us from this nuisance, instead of which the numerous generating stations are adding to the blackness. Until its price is reduced to half what it is now sold at, the work electricity is capable of will remain unaccomplished. A study of the works costs of the stations now running will show how wasteful the present system is. In Rome electricity is produced and retailed at prices below what I have suggested as possible in England. It will be said they have water-power; that is true, but a very considerable item in their accounts is the capital charges on the cost of harnessing that power. What engineering difficulties stand in the way of utilising the tidal force which sweeps round the coast? No part of this country would be outside the radius of economical distribution, but if beyond our present-day capabilities to execute and finance, the scrapping of nine stations out of ten would lead to economy which would go far to produce the current at a price that will make it the cheapest method of producing power and light and add to the cleanliness of our towns.

With cleaner, brighter cities and towns where Wren's recommendation for the rebuilding of London has been carried out, that "all trades that use great fires or yield noisome smells be placed out of the town," and from which slumdom has been eliminated, as the result of the foresight engendered by the making of the town plan in which the idealist, the artist, the architect, and the engineer have been given a free hand and have done their best, life in the centres of industry will be more worth living, not only to those who have to remain and live therein, but to the workers and business men whose working hours are spent in them.

Accommodation for the businesses and dwellings displaced for the rebuilding of the centre will have to be provided in the outskirts, where great care must be exercised to prevent their lapsing into anything approaching the conditions which existed in the centre. The allocation of quarters for business, manufacturing, shopping, and residential districts in areas most suited to them, so that no nuisance can be set up which shall injuriously affect the property or residents of the remainder, can be secured by the adoption of the Act.

With security for property given as above in the old and new areas it is to be hoped that the architect may come into his own, and that well-planned buildings with stately elevations may surround the civic centre, and that the homes to be provided shall be convenient, their elevations freed from the sameness now prevalent. The houses being well set back with sufficient gardens in front gives the owners the opportunity to vie with each other in each length of road as to who shall produce the best floral display. Then in wide, well-planned roads, with grass margins and plenty of private and public open spaces, similar to the village greens or the squares of London, of which we are informed there are upwards of 400, we have a dream of what England may be in the future. This ideal is one which every member of this institution stands pledged to assist in making a reality.

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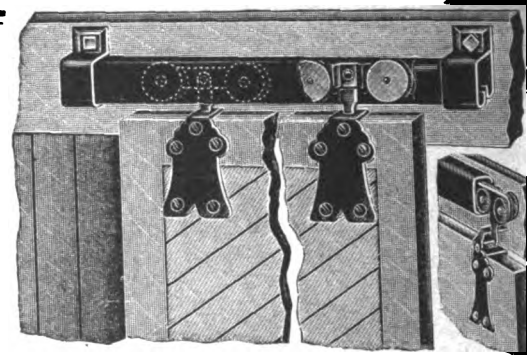
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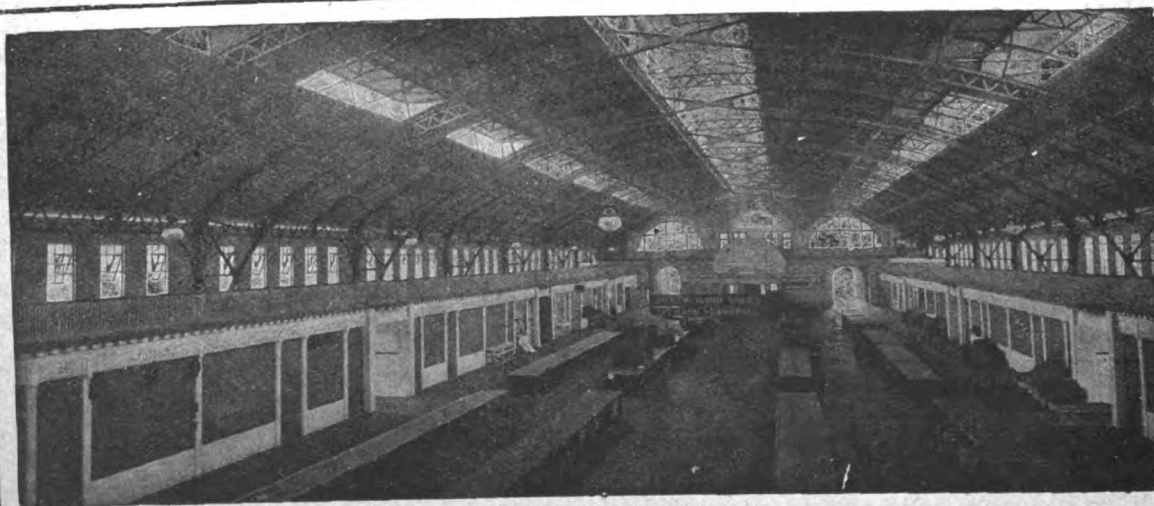
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that men entering the profession shall be thoroughly trained. The course given will direct the studies of prospective members into right channels, and the work needed in preparation will be of immense value. (2) A scale of charges and regulations for securing equitable arrangements for the conduct and adjudication of competitions for its members, and fairer treatment than is possible unless such matters are fully understood by the public, in whose interests the work is done.

In these matters the institution is to be congratulated that at this early stage in its career they have been able to perform work which has taken other institutions very much longer to carry out. It must also not be assumed that the institution guarantees that when the examination has been passed the man who has complied with the test is an artist. Preparation for the examination will ensure that he has a thorough knowledge of the technicalities of the subject and its history, which will go a very long way to secure that the work the man does shall be above that done by those who do not take the examination.

The membership of the institution may be considered satisfactory. At the date of its inauguration in 1914 the numbers were 118. On the publication of the first volume of its proceedings the membership totalled 157, and at the present day they are 179.

In conclusion, let me again thank you for the honour you have done me. My predecessors in office have been men who for all time will be recognised in English-speaking countries as pioneers, and their influence is already having far-reaching recognition.

My endeavours will be given, during my term of office, to discharge the duties devolving upon me in a way that this institution shall not decrease in usefulness, and I know that the Council and the members will give every possible assistance.

## BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### BEDFORDSHIRE.

*Biddenham*.—Biddenham Works: additions for Messrs. W. H. Allen, Son & Co., Ltd.

*Goldington*.—House, Hombolton Road, for Mr. W. Laughton.

##### CUMBERLAND.

*Carlisle*.—Alterations to various licensed premises, for the Liquor Control Board. Messrs. J. & R. Bell, builders, Nelson Street.

##### DERBYSHIRE.

*Chesterfield*.—The "Wellington" Inn, Spencer Street: alterations for the Home Brewery Company (Nottingham). Mr. T. S. Wilcockson, architect, Knivesmith Gate.

*Derby*.—Proposed Works for the British Cellulose and Chemical Manufacturing Co., Ltd.

*Ilkeston*.—R.C. church, Regent Street.

Factory, Cotmanhay Road, for the Milanese Hosiery and Textile Co., Ltd.

##### DEVON.

*Exmouth*.—Cottage hospital: additions. Mr. E. E. Ellis, architect, near Railway Station.

##### ESSEX.

*Black Notley*.—Sanatorium: additions, alterations, &c. (£1,100).

##### HAMPSHIRE.

*Bishop's Waltham*.—Premises, The Square, for the Eastleigh and District Co-operative Society.

##### ISLE OF WIGHT.

*Ryde*.—Melville House, Melville Street: additions. Mr. C. Langdon, builder, Player Street.

##### KENT.

*Ramsgate*.—Piggeries, West Dumpton, for Mr. R. E. Hodgman.

##### LANCASHIRE.

*Abram*.—Two houses, Plank Lane, for Mrs. Bromilow.

*Blackburn*.—"Prospect" Mill, Wharf Street: additions for Mr. R. Birtwistle.

*Burnley*.—Central Library. Borough Surveyor; also Lord Roberts' Workroom for Disabled Soldiers (£5,000).

*Rochdale*.—Extension for the Balderstone Mill Co.

Store for the Rochdale and Manor Brewery, Ltd.

##### NORTHAMPTONSHIRE.

*Higham Ferrers*.—Factory, The Back Way, for Mr. A. E. Wright.

##### OXFORDSHIRE.

*Banbury*.—St. John's R.C. schools: additions and alterations.

##### SOMERSET.

*Bath*.—The Picturedrome, Southgate Street: alterations. Mr. M. A. Green, F.R.I.B.A., architect, 5 Prince's Buildings.

##### STAFFORDSHIRE.

*Glascote*.—Three houses, Arygle Street, for G. S. Musson.

*Stoke-on-Trent*.—Kilns, London Road, for Messrs. Bilton & Co.

Kingsfield Pottery: additions for Mr. W. Lovatt.

Stables, Copeland Street: alterations for Messrs. S. Allsopp & Sons.

Works: alterations for Mr. W. H. Sturgess.

##### SURREY.

*Croydon*.—Store, Church Street. Messrs. Gale, Durlacher & Emmett, architects, 15 New Bridge Street, London.

##### YORKSHIRE.

*Maltby*.—P.M. Sunday school, Lincoln Street.

*Portefract*.—The "Turk's Head" Inn: rebuilding for Carter's Knottingley Brewery Co.

*Silsden*.—Proposed fifty Council houses.

#### SCOTLAND.

*Port Glasgow*.—Proposed S.A. halls, King Street and Gillespie's Lane.

#### IRELAND.

*Belfast*.—Ulster V.F. hospital: new wing.

## PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 8,200. June 2, 1915 (dated under International Convention, June 13, 1914).—Joseph Ricchini, 50 Faubourg de l'Hopital, Neuenburg, Switzerland. Bearer or support for scaffolding and the like.

13,194. Sept. 15, 1915.—William Marriott, The Grange, Brinton, Melton Constable, Norfolk. Reinforcement for reinforced concrete construction.

100,269 (4,284, April 12, 1915).—William Yeates, 132 Marple Street, London, Ontario. Door locks.

14,249. Oct. 8, 1915.—Thomas Thomas, 12 Park Street, Clydach Vale, Rhondda, Glam. Mechanical appliances for loading and unloading coal, stone, sand, or the like.

101,450 (6,576, May 8, 1916).—W. J. Tieg, Eganville, Ontario. Shovels.

101,465 (9,163, June 29, 1916).—George Anderson and the Leyland and Birmingham Rubber Co., Ltd., 24 Duke Street, Aldgate, E. Stair treads.

101,299. (133. Jan. 4, 1916).—W. E. Clark, 28 Adelaide Street West, Toronto. Temperature and pressure controlling device for hot-water heating systems.

12,984. Sept. 10, 1915.—F. S. Grogan, 143 Ashby Road, Loughborough, Leicestershire, and E. W. G. Burder, "Ingle-side," Loughborough, Leicestershire. Electric cooking apparatus and switch gear therefor.

13,337. Sept. 18, 1915.—A. P. Florence, Scotston, 15 Manor Court Road, Hanwell, W. Domestic ranges.

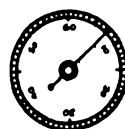
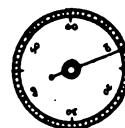
14,941. Oct. 22, 1915.—L. H. Pearce, 59 Platts Crescent, Amblescote, near Stourbridge. Lanterns for producing artificial daylight.

16,518. Nov. 23, 1915.—W. C. Horne, St. Katherine's, London Road, North Cheam, Surrey. Phosphorescent or luminous crayons, pencils, or masses, and 16,519, Nov. 23, 1915. Self-luminous pencils or crayons.

16,977. Dec. 2, 1915.—James Work, Devon House, and Mould & Brown, Ltd., Devon House, 56 and 58 Stanley Street, Liverpool. Domestic hot-water supply systems.

101,365 (1,860, Feb. 8, 1916).—N. B. Arnold, 71 Otsego Street, Brooklyn, Kings, New York; U.S.A. Composition of matter to be used as a paint for general purposes.

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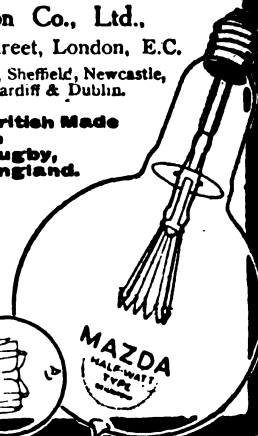
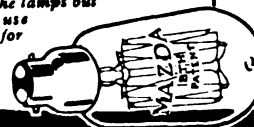
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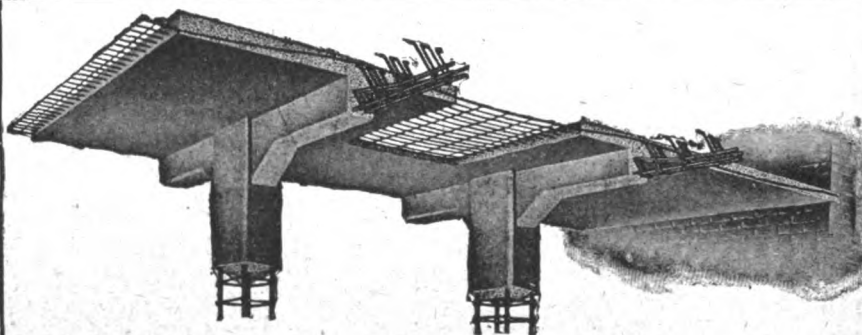
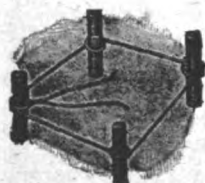


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# THE ARCHITECT

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## FORTHCOMING EVENTS.

*Saturday, October 28.*

Institution of Municipal and County Engineers : Meeting in the South-Eastern District at Worthing Corporation Art Gallery, at 11.30 A.M.

*Thursday, November 2.*

L.C.C. Central School of Arts and Crafts, Southampton Row, W.C. : University Extension Lecture V. on English Architecture : "Medieval Interiors, Exteriors, Arcades, Doorways, Windows," by Mr. Banister Fletcher, F.R.I.B.A., at 6 P.M.

## "ECLIPSE OR EMPIRE?"

"ECLIPSE OR EMPIRE?" Such is the title of a recently published book\* which should be read by everyone who has any interest in the future prosperity of the British Empire, or even of any portion of the Empire. In it the authors make clear the unpleasant lesson, to the truth of which the present war has rudely awakened us, of our rapidly growing industrial inferiority to our competitors in the world's commerce. Various causes contributing to this position of inferiority are pointed out, and naturally enough, from the standing occupied by Dr. Gray as an educationist, especial emphasis is laid on the deficiencies of our educational system, in relation to which the authors adopt the proposition of Mr. A. J. Balfour that "the existing educational system of this country is chaotic, is ineffectual, is utterly behind the age, makes us the laughing stock of every advanced nation in Europe and America, puts us behind not only our American cousins, but the German, the Frenchman, and the Italian."

The war has aroused us to the fact that a policy of industrial penetration has been organised by alien Powers and pursued on a scale far beyond what we had even dimly conjectured. Foreigners have crept in unawares in such numbers and in such insidious ways that, when the day of Armageddon came, their sinister influence was discoverable in almost every quarter of national activity. This truth has been brought home to us in all sorts of ways. Bitter experience has taught us to realise that the nation had become dangerously dependent on its enemies in many key industries, while by State subsidies and other means those enemies had, in many cases, practically wiped out certain British industries altogether. A goodly part of the book to which we have above referred is occupied by a very full glossary of practically the whole range of industrial activities in which the exact detail is given of the part played in modern progress by Great

Britain and her competitors, clearly stated by experts in each trade. The perusal thereof is not flattering to our vanity.

One of the most disquieting facts in relation to our industrial output is disclosed by a comparison of the relative output of English and American workers per man employed in many of our important industries. The figures in the following table have been extracted by the authors of the book before us from the Census of Production of the two countries taken in 1907 and 1909 respectively for the value of the average annual output in pounds sterling of each worker employed :—

	United Kingdom. £	United States. £
Boot and shoe trade . . . . .	171	516
Cocoa, chocolate, confectionery . . . . .	296	662
Cutlery and tools . . . . .	164	323
Clothing . . . . .	158	484
Hats and caps . . . . .	149	414
Hosiery . . . . .	184	309
Leather . . . . .	686	1,054
Matches . . . . .	223	625
Paper . . . . .	330	705
Printing and publishing . . . . .	396	572

In the great industry of coal mining we are told that thirty years ago (1886) the average cost of extracting coal at the pit's mouth in England was 4s. 10d. per ton; in 1912 it was 9s. 0½d. In the United States it was 6s. 4½d. in 1886, in 1912 it was 6s. 1d.; that is to say, while the cost has increased in Great Britain by 4s. 2½d. per ton, in America it has decreased by 3½d., and is now, in round figures, two-thirds of our own.

The statistics of our iron and steel production show that whereas in 1865 Great Britain produced roughly five times as much iron and two and a quarter times as much steel as Germany, in 1913 Germany produced almost twice as much iron and two and a half times as much steel as Great Britain.

Of our agriculture it is unnecessary to speak. We are all aware that as a productive source of wealth it has declined lamentably, that we are dependent for our food upon foreign imports to a dangerous extent.

It is obvious that our old ways, our old prejudices and preconceptions, social, industrial, and educational, must be radically reformed if we are to tread the only road, under modern conditions, to future peace, future prosperity, and future power. If we neglect such reform, Great Britain, however victorious in arms, is doomed by the laws of progress to sink gradually into the position of a second-class Power.

Never in the history of Great Britain has there been a moment more auspicious for a parting of the ways. The whole metal of the nation is in the melting-pot, and has to be re-cast. The values of life are being everywhere readjusted. The true proportions of things that matter are seen in clearer relief; the fabric of social relations has been rent in twain from the top to the bottom. Under the stress of war men clasp hands who once walked aloof. In the trench and factory new fellowships have sprung into life. Class differences tend to be blurred.

Although millions of men have been withdrawn from productive and commercial industry to service with the Colours, the startling fact has been made plain that the country has a bigger output than ever, with the State as the predominant partner, with the internecine conflict between capital and labour held in check, if not entirely concluded, with organisation, hastily improvised and imperfect though it may be, regulating the life of the individual by the State.

When the peaceful activities of our normal life are resumed it is abundantly clear from the lessons of the war that the State must become a partner, and a predominant partner, in the whole of our industrial and commercial activities. The nation must be organised as a whole in both industry and commerce, with the State

\* "Eclipse or Empire?" By Herbert Branstion Gray, D.D. Oxon.; member of the Mosely Educational Commission to U.S.A., 1903; President of the Educational Science Section of the British Association (Canada) 1909, (Australia) 1914; Secretary to the Royal Commission on Taxation, British Columbia, 1911; and Samuel Turner. (London: Nisbet & Co., Ltd. 2s. net.)

as the foster-mother of every activity in all industrial and scientific spheres.

Capital and labour must become equal partners in industry, their mutual co-operation assisted and developed by the State. There must be an end to the doctrine that wages must be made to depend on the balance between the demand and the supply of labour, which in the past has been ruthlessly exploited by many unscrupulous employers, and has led to intense industrial bitterness, out of which have arisen the birth and growth of Trade Unions, with their doctrine of artificial restriction on the energy and output of the individual; a doctrine necessary, no doubt, as a tactical weapon in the conflict with the tyranny of capital, but utterly ruinous to the prosperity of the nation as a whole.

Here the State must step in and adjust, fairly and without prejudice, the relations of capital and labour, so that each may receive its due reward. The production of the British worker must be allowed to attain its full potential magnitude, and the State must assist in the full consumption, through more intensive commerce of that production, so that the worker may receive his due reward for increased speed and increased product in the form of fewer hours of labour and higher pay. Why should not the Ministry of Munitions, when its work for war is ended, become the Ministry of Industries, and lead the organisation of the nation for the defence of the realm in peace?

#### NOTES AND COMMENTS.

WHILST it is of undoubted importance that British industry and commerce should receive more active assistance from the State than in the past, that activity, if it is to be really serviceable, must be more intelligent than the procedure of our present Board of Trade. Particularly is this remarkable in the foolish dog-in-the-manger policy of the issue of a "Board of Trade Journal," which makes Government copyright of Consular Reports and other information the Board obtains at the expense of the taxpayer. The "Board of Trade Journal" has but a limited circulation, and its information is therefore restricted to a far smaller circle than would be reached by the dissemination of news throughout the Press of the country. It might be said that those interested in its contents will readily pay 3d. for a copy of each issue, but unfortunately each copy contains so much information that every trader and manufacturer who does read it has to sift through an interminable amount of what to him is chaff, to find the grain of wheat he desires. The druggist is only bored and wearied by all the detailed particulars of the hardware trade. Whereas if the information were distributed as by a news agency, each specialist trade paper would select those items which were of interest to its readers.

A lengthy report has been presented by Messrs. John A. Brodie, M.Inst.C.E., City Engineer; J. B. Hamilton, general manager of tramways, Leeds; and A. Horsburgh Campbell, M.Inst.C.E., Borough Engineer, upon the tramway system of the city of Edinburgh and the methods of traction which, relative to the whole of the future of the undertaking, might be adopted for the city. Particular attention is given to the amenities of Princes Street and the necessity for a "twin-wire" for temporary use. As to this the reporters say: The twin-wire involves four overhead wires, two of which (for an overhead tramway) would remain permanent. The reporters suggest that having regard to the unique amenity of Princes Street, the four overhead wires and their row of supporting columns with cross-span wires should so remain for the briefest period possible. To this end the new tramway might be laid towards the south side of the street (as along the Thames Embankment in London), diverging from the centre at a point opposite South St. Andrew Street to the West End. This plan would enable this street to be treated and almost completed—except at junctions—before 1919, and it would much reduce the

temporary period during which overhead wires would be suspended across the centre of Princes Street, and permanently it would relieve the roadway of a central tramway and its narrowing effect upon the carriage-way of the street. The overhead wires, tastefully supported, would be rendered comparatively unnoticeable by the overhanging foliage from the Gardens. If the proposals submitted for Princes Street were not acceptable, the central line of the street, as now, was always available, and in this connection the reporters state that the Corporation might be helped to a wise decision at a later stage by the adoption of Queen Street (north side) as an alternative tramway route, so enabling Stockbridge, Comely Bank, and Canonmills districts to be brought into direct and immediate communication with the Caledonian and Waverley Stations without change of car. Time would thus be given for consideration, and a good typical example of the effect of the overhead system in the vicinity of foliage would be provided for the information of the Corporation and citizens. The Queen Street linking-up would be of much value, not only during the constructional period, but subsequently for relief of Princes Street from the pressure of traffic on special occasions.

At a meeting of the Manchester District Associated Educational Societies Sir Henry Miers (Vice-Chancellor of the University) gave an address in which he advocated an effort to bring workers in different fields of knowledge more closely into touch with each other by simplifying the technical language in which specialists usually convey their ideas and information. He thought that it was very helpful to teachers when they came into contact with specialists of all sorts. Their minds were taken away from their routine teaching duties, and they were freshened and strengthened. Teachers were always in danger of becoming antiquated, and revision was constantly needed. A difficulty in securing this contact was created by the growing tendency of specialists to talk in a language which could only be understood by themselves. Technical language was necessary for the progress of knowledge and for clear definition, but at the same time it acted as a barrier against those who wished to learn something of other subjects than their own. It always seemed to him that ideas were not so complicated that they could not be expressed in simple language, and it should not be necessary to learn the technical language of the chemist or musician in order to get some knowledge of the ideas which were germinating in their special subjects. Was there ever a book more full of ideas, or in a sense more devoted to a special subject, and yet more readable, than the "Origin of Species," which was written for the scientific world?

It was necessary that specialists should be acquainted with the progress of each other's work, because more and more discoveries were made on the borderland between two great branches of knowledge. The principles established in one subject were applied to another, and whole new departments of knowledge had been born from the contact of two different subjects. The application of discoveries in psychology to education was becoming more and more fruitful of good results. The obstinate barrier of technical language hampered progress in this healthy cross-fertilisation between different subjects, and unless something was done it would become more and more impenetrable. He believed much could be done in associations like that to which his audience belonged if representatives of the different societies were to meet periodically and describe to each other recent advances in their respective subjects. This would be useful both to speakers and listeners, and it would give a new breadth to education. He thought that much distrust of educational reform was due to the public being scared by the language of some of its advocates.

The settlement of compensation for the damage done by the rebellion in Dublin last Easter still drags on with the usual crop of grievances. The insurance basis put forward by the Government is, of course, a failure.





ST. BARTHOLOMEW THE GREAT.—From an Etching by Mr. H. G. WEBB.

because many of the sufferers were only partly insured and others not insured at all. The compensation to the latter appears to be in slow course of estimation on the basis of what the property ought to have been insured for, and so it comes about that the partly insured are in a worse position than the uninsured. The Government basis needs revision here also.

The Dublin Chamber of Commerce has appointed a Housing Reform Committee, and there is plenty of scope for their activity when 73,000 persons are herded together in 12,000 single rooms, when the Corporation Housing Committee appears to intend evasion of the lines recommended by the Departmental Committee of Inquiry on Dublin housing, and when an American loan of \$2,000,000 is on offer for the Corporation to accept, as it probably will, on the recommendation of its Housing Committee.

A valuable development of the amenity of the Thames side near the Houses of Parliament is brought a step nearer by a decision of Westminster City Council to contribute £10,000 towards the cost of the extension of Grosvenor Road Embankment from Grosvenor Wharf to

Lambeth Bridge. This stretch of the river front just south of the Victoria Tower Gardens is some 200 yards in length, and it is occupied by wharves where barges are constantly being loaded and unloaded with the assistance of much heavy street carting.

Mr. McKenna, in a written answer to Mr. Evelyn Cecil, says: The net receipt of the increment value duty and the reversion duty for the year 1915-16 was £46,870 and £11,796 respectively, and the estimated yield of those duties for the current financial year is £50,000 and £10,000 respectively. The assessment and collection of undeveloped land duty, in consequence of a judicial decision affecting the principles of the valuation of land liable to this duty, has been suspended.

Replying to a further question by Mr. Evelyn Cecil, Mr. McKenna says: The cost of the Land Valuation Office for the year 1915-16 was £466,000 (as compared with an estimated cost of £587,000), and the estimated cost for the year 1916-17 is £368,000. These figures include sums of about £45,000 for 1915-16 and about £93,000 for 1916-17, in respect of salaries of men on active service.



## ILLUSTRATIONS.

## MUNICIPAL BUILDINGS, GOUROCK.

THE commission for this building was placed with Mr. Alexander N. Paterson, M.A., A.R.S.A., F.R.I.B.A., as the result of a limited competition shortly before the outbreak of war, and, the Town Council having decided to proceed with all the preliminary work to enable building operations to be commenced on the return of peace, the working and detail drawings have been in hand during the past year.

The site is long and narrow, the end, looking north-east, facing an open place with a rather steep slope upwards from the Firth of Clyde, on which it opens, while its length lies on one side of the somewhat narrow street leading to Greenock. Much the most important position on the site is therefore the corner of the street and place, hence the placing of the Council Chamber and tower.

The north front is to be continued by new County Police buildings, and the Court Hall in the town's chambers is therefore situated there, with direct access to the police quarters and cells next door. With this exception and that of the collector's (or rates) offices, the ground floor will be let to various prospective tenants, the estate office, the parish council, local banks, &c. On the first floor are placed the Council Chamber, committee rooms, &c., with the remaining municipal offices; while the second floor is occupied by dwelling-houses, with access from the secondary stair and a covered balcony at the back.

The outer walls are proposed to be of white freestone, the roofs covered with dark green Westmoreland slates, these materials, by arrangement with the architect of the county building, being also used in it. The tower lantern will be covered with lead.

The drawing reproduced is a study to half-inch scale of the municipal features of the building, which was exhibited in the recent Royal Scottish Academy Exhibition. Since it was made the design of the tower has been improved (as the result of friendly criticism) by heightening the shaft by about six feet and omitting the two upper windows under the clock stage.

## HOUSE AT FERNHURST.

THE drawing we reproduce was exhibited in this year's Royal Academy, and with its plan sufficiently explains the design by Mr. J. Percy Hall, A.R.I.B.A.

## THE HOTEL CAMERON, SWANSEA.

THE new hotel faces High Street, in what may be best described as the business heart of this great industrial community, and at the junction of the two principal arteries of the town.

The site was formerly occupied by "Ye Olde Cameron Arms Hotel," one of the oldest and most famous posting houses in South Wales, and one of the buildings associated closely with the early history of Swansea, when Glamorganshire was the centre of the copper-smelting industry of the world. During the demolition of the ancient premises a quaint old well was discovered, situate under the original smoke-room and connected to the kitchen premises by a very well-constructed stone tunnel with an arched roof. The well was of considerable depth, some thirty odd feet to the water level, and as far as could be ascertained contained a depth of about 40 feet of water, and was circular in shape and constructed of flat thin stones laid with very little mortar.

Numerous coins bearing date 1800 were found under the floors, and old invitation cards dated 1789 appeared to indicate that this old house was a centre of attraction in the early days of old Swansea. Apparently the baths were a very special feature, for one card stated that "hot baths may be had by giving fifteen minutes' notice."

Considerable difficulty was experienced in obtaining a good foundation at one point, the sub-soil pointing to the conclusion that the site in the fifteenth century formed

part of the bank of the river Tawe, in close proximity to the walls of the old Swansea Castle.

About fifteen years ago the rear portion of the premises, partly fronting the Strand (the riverside roadway some thirty feet lower than the High Street), and including staff bedrooms and the large banqueting hall, capable of seating about 300 diners, were erected, the intention being at that time to complete the whole scheme. But serious financial difficulties and numerous law actions relating to easements, however, brought about a stoppage of the building works, and no further progress was made until the present scheme was taken in hand.

The premises, as shown in the illustrations, were completed within twelve months, and form one of the most modern and complete hotels in the provinces.

The principal façade is carried out in red Wilderness stone to the second-floor level, and in red pressed bricks with Bath stone dressings above that level.

The portico is supported by means of pairs of polished red Aberdeen granite columns, with unpolished grey granite capitals and bases.

In addition to the large accommodation for commercial gentlemen, these premises being largely used in normal times for big public functions, generous lounge accommodation is provided upon each floor, similar to that shown in the interior illustration, the spacious entrance hall and grand staircase being the principal feature in the interior. The ground floor contains in addition to the large banqueting hall, grill-room, lounge bar, luncheon bar, and billiard-room premises, besides ample cloak-room and servery facilities. The basement premises contain up-to-date kitchen offices fitted with the finest of cooking apparatus.

The first floor contains residents' billiard-room, ladies' drawing-room, coffee-room, and a fine commercial room about forty feet square. Some 100 bedrooms are provided in the various other floors. Electric passenger and service lifts have been installed, and an electric goods lift in the large stock-room building containing about sixteen stock-rooms, facing the Strand and connected to the main hotel premises by a covered bridge.

The total cost of the premises, including the works carried out in the first instance, was about £45,000. The completion of the premises was carried out to designs prepared by and under the superintendence of Mr. Charles T. Ruthen, and the general contractors were Messrs. Henry Billings & Sons, of Swansea.

## ART, CRAFT, AND INDUSTRY.

THE Arts and Crafts Society have arranged a series of weekly discussions at the Royal Academy which may do even more good than the very real excellences of the exhibition itself. For, if one may judge from the syllabus, the subjects have been chosen with an eye to practical politics, and they are to be handled by the right sort of speakers—by no means all of them members of the Society. The first one took place on Tuesday afternoon last in the gallery rechristened "University"—it stands behind the Central Hall usually devoted to sculpture but now known as "Ecclesiastic"—under the Chairmanship of Sir Aston Webb, K.C.V.O., R.A. The discussion was on "Art, Craft, and Industry," and there were four short papers by Mr. Henry Wilson (President of the Arts and Crafts Society), Professor Selwyn Image, Mr. Reginald Blomfield, R.A., and Mr. Chas. S. Spooner, F.R.I.B.A., with informal remarks by Mr. C. R. Ashbee and Mr. F. V. Burridge (Principal of the L.C.C. Central School of Arts and Crafts). We give below the contributions by Professor Image and Mr. Spooner, and we hope to publish next week the longer paper by the President. Mr. Reginald Blomfield filled up the ten minutes allotted to him with some remarks which got home in a very direct fashion, and made a happy variation on the other more formal utterances from the platform. When the founders, of whom Mr. Blomfield was one and Professor Lethaby another, started the Society about thirty years ago, they had two main ideas: first, to break through the soul-destroying commercialism,

which brooded over the decorative and applied arts; and, second, to give the industrial artist a chance of showing what he could do. Somewhat sadly Mr. Blomfield has to confess to a disappointment of those high hopes which sprang to life at the New Gallery, for progress has been very slow and very partial, and has scarcely touched the half-educated many. The artist, he said, must cease to regard himself as an exceptional being who can pursue his visions in sheltered ease; he must go down boldly into the market place, wage war against stupidity and ignorance, and realise his responsibilities to the community. That the future is not without hope Mr. Blomfield deduced not merely from the many fine things prepared for the exhibition, but from the presence in it of beautiful articles purchased in the commercial world. He particularly instanced a saucer, priced at about three-halfpence, a small coloured bowl on the lines of the century-old Sussex slip ware, and the admirable series of posters commissioned for the Underground Railways. In conclusion Mr. Blomfield expressed his belief that one of the compensations of this war, with its tragic tale of distress and suffering, will be the clearance away of cant, affectation, insincerity, and that morbid and mischievous strain that has shown itself far too commonly in recent art. "It will bring us all back to the plain facts of life, and it is here, in the ennoblement of the common things of daily life, that the artist and the craftsman must take their stand."

Mr. Burridge argued that the only hope for improvement in public taste lay in the education of the middleman, who could kill all incipient demand for beauty by failing to meet it. The manufacturer was not likely to select beautiful designs if he found they were turned down by the middleman, and therefore never reached the public.

#### By PROFESSOR SELWYN IMAGE.

(1) I venture to suggest to you that, so far as the relations between art, craft, and industry are concerned, what we need in the present day of judgment is a union between fine sense and common sense, an intimate, an abiding union between them. The man who just now, in respect of these interests, wants to be up and doing his duty by the commonweal must certainly have high ideals, from belief in which no difficulties and disappointments shake him. At the same time he must steel himself to face the world as actually it lies about him; to face it, and pretty much to take it as it is. He must be at one and the same moment, that is, a dreamer of dreams, and yet a sympathetic toiler amid life's hurly-burly without suspicion of contempt for those less sensitively endowed than he is. I submit to you that, if we are to be effective, the first business is to get this clearly seen and frankly accepted for a fact by ourselves.

(2) Some thirty years have gone by since the Arts and Crafts Exhibition Society sprang into existence. It is the same society, then established, that to-day within the famous galleries of the Royal Academy has arranged for us this notable exhibition. The same society enlarged, but not essentially altered, in spirit. The needs and problems of 1916 are not, however, entirely identical with the needs and problems of 1887. In those mid and late 'eighties the thing was to assert the supremacy of handicraft; and to claim for all practitioners in the crafts, who showed imagination and sound workmanship, their position as artists. Well, in theory at any rate, nobody nowadays denies it to them. The generous invitation of the Royal Academy, which has made the present exhibition possible, is the plain proof that so far victory has been won. We may sing "Te Deum."

(3) Thirty years ago the immediate call was to enlarge men's whole conception of the meaning and scope of art. I am far from suggesting that nothing further remains to be done in that direction; still I am very far from suggesting it. But to-day, as in some sense it was not thirty years ago, it is the question of the artistic industries that faces us peremptorily. And what do we mean by the artistic industries? We mean that, of necessity, over-

whelmingly predominant amount of work into which the use of machinery must enter. We have to put the matter to ourselves squarely. No competent person denies the supremacy of supreme handicraft. *Manet et manebit in saecula saeculorum*. But are machinery and good art incompatibles? Is it mere truckling to an impish will-o'-the-wisp to dream of reconciling them? Is any presentable appearance of their reconciliation a delusion of the devil? In this brief ten-minutes' address it is impossible to argue the point. You must forgive me if I merely state baldly that, at any rate to my mind, such a conclusion is uncultured and ludicrous—nay, is itself precisely what I have just called a delusion of the devil. If that be so, then at all events one immediate duty of the Arts and Crafts Society is to dissipate the delusion; to help bring about reconciliation on sound lines; to read machinery, no doubt, the salutary lesson of learning how to keep its proper place; but to show it how, when that lesson is learned, it too may be a handmaiden in producing things of beauty and fine interest. Really, experience proves to any unprejudiced mind that to deny it the capacity of producing these and making them available to the general public is to ride the high horse too arrogantly. And, mind you, the members of the Arts and Crafts Society need abate no jot of their principles through such enlarged, sympathetic action as it appears to me it is now their particular province for the general good to take.

(4) I am aware that some who would be willing to go thus far with me in a more or less vague alliance would at the same time counsel the restriction of machinery to what one may call the constructive side of objects and fabrics; they would bar it, as far as possible, from touching ornament. We are indeed all of us only too aware of the abominations which machine-made ornament has heaped on us. What a blessed thing if we could but make a clean sweep out of the world of 90 and more per cent. of such ornament! We are constantly being told that the itch for ornament has been the ruin of art. Certainly there is a good spice of truth in the statement. Yet the fact remains that the appreciation of unadorned simplicity is a rare gift amongst us; and the fact has to be faced. A finely proportioned, well-made, plain wooden table and set of chairs in a whitewashed room would be entirely satisfying to the purged and elevated æsthetic sense, but satisfying, I am afraid, to that so excessively scarce a sense only. "Then we must set ourselves," it may be said, "to inculcate and develop such a sense till it becomes prevalent." Well and good. But for the most part it is a mistaken policy in attempts at reformation to cut us clean off from what in our undeveloped state appeals to us. Counsels of perfection are only for the saints. The thing rather is to see whether what does appeal to us cannot be made at least reasonably passable. We know the kingdom of heaven may be taken by violence. Yet another Scripture says, it cometh not with observation. It is of growth imperceptible. Here a little, and there a little. Its evolution, as evolution generally, is a process exceeding gradual. To apply this idea to the matter in hand. Everybody knows perfectly well that amid all the mass of pernicious rubbish with which we are inundated it is still quite possible with a little care to come across products of industry into which machinery has largely entered that are beautiful things. Is it not next door to barefaced affectation to deny it? These products are not comparable indeed with the most beautiful things man's hand can make. No sane man will pretend they are. Yet in their order they are beautiful. They are beautiful in so far as and because they have been designed for their purpose, and the machine has only been set to do what it is able to do excellently. That man is unreasonable, nay, rather, in regard of art he is a suspicious character, who persistently turns his back on all in this world but the very best. In such an attitude there is something of vulgarity, because there is in it at bottom a spirit of unhumanity. Is it not preposterously a hard doctrine if, so far as our personal gifts and influence go, we should

consider ourselves not only exempt, but on principle debarred, from putting these at the service of what in art for the immense majority of our fellows, though the satisfaction of an innate craving in them, yet in the nature of things can be no more than second or third best. Second or third best—yes—still in the category of good. It is only to your pedantic virtuoso that, say, a machine-decorated fabric or piece of furniture is, of necessity, a villainous product. Experience teaches us that under proper conditions it need not be this; and I submit that the duty of the genuine lovers of art is to see to it that it shall be this less and less. I cannot help feeling that for our society, without foregoing one tittle of its higher effort and work, here lies an immense opportunity for influence of incalculable usefulness; and my hope is that its members will not neglect their opportunity.

(5) Of course we all know that into the matter under consideration go many questions other than purely artistic ones—such questions, I mean, as those of labour, wages, and social life. My time, my rigorously enjoined ten minutes, however, is up, so that I cannot now even touch upon these. But, supposing we had hours to spend over them, we should not make real progress so long as there lingered a suspicion in our minds that machinery and art—art, if confessedly not of the finest, still of a beneficent and widespreading order, were of necessity irreconcilable; and that we were only wasting our time and dissipating our energy in trying to arrive at what could not prove other between them than a vain and pernicious compromise.

By MR. CHARLES S. SPOONER, F.R.I.B.A.

The relationship between art and industry is, alas! an extremely distant one, and it is a relationship which has been receding further and further ever since the invention of the factory system. I suppose one of the objects of these conferences is to try to find out how it may be brought very much nearer—indeed how it may, if possible, be brought to an intimate relationship.

I have heard for the first time since the war began of the German "Werkbund," a society, I understand, formed for this very purpose; and I have had the opportunity of reading an English translation of an address by a German professor to that society, an address which I believe is to be published in this country. That address certainly made me less pessimistic about the possibility of such a relationship. I need not apologise for mentioning a good thing which our chief enemies have attempted. How far they succeeded in that attempt I do not know, and I think it would be valuable if someone who knows much about the "Werkbund" would tell us its aims, its procedure, and its accomplishments. I think I am right in saying that its founders were inspired by the work of the Arts and Crafts Exhibition Society. As it is a German organisation its methods would probably be inapplicable in this country, but I am quite sure of one thing, and that is that we English people are a much more artistic race than the Germans, and can, if we choose to use our powers, obtain very much better artistic results.

We are constantly being told by people of importance and by newspapers that we are not an artistic people. Now, I am inclined to think that people of importance very often mislead us, and even newspapers have been known to make mistakes. But how people can make such a statement when there is so much evidence to the contrary is a puzzle.

We English are the same people who built Westminster Abbey, Westminster Hall, St. Paul's Cathedral, and all the exquisite churches and houses scattered with a liberal hand throughout the length and breadth of this land. The museums are full of the works of art, everyday homely art, made in the time of our grandfathers. Everybody who can fill his house with the things made in those days by Englishmen, and delights in his possessions.

If anyone is known to have a collection of pictures, of china, or glass, or books, of anything beautiful, he is inundated with requests from people of all classes to be

allowed to see these things. Everyone knows this, even those people of importance who go on saying we are not an artistic people.

If we are not, surely it is a very curious thing that so many should take so much interest in works of art.

No, believe me, it is not true. Give the modern Englishman a chance and he will soon be found to be as artistic as his forefathers. But he must have the opportunity of making artistic things, as well as of looking at those which were produced in the past. And he must be asked to make modern artistic things, not mere reproductions of old work. The modern will most probably at first be inferior to the old, and it will be built up upon the foundations of something that has been done before. Our newspapers ought to find people to write for them who can recognise and appreciate good qualities in modern work and encourage it by constructive criticism, and not be perpetually asking for a new style ready-made, or comparing attempts with fine examples of the past, which were the result of a long tradition. Our newspapers can do much in developing the artistic powers of the nation, and their responsibility is heavy.

Another thing which we should not be so frightened about if modern work is to develop is learning from each other—copying if you like to call it so, provided the copying is intelligent and has some individuality too. That is how the old styles, as we call them, grew, and the inventive man will always keep ahead of his copyists: he has the privilege of being a leader of the style of his time.

I do not know enough of the conditions of big industries even to begin to suggest how to apply art to the things which they produce. I used to think it was quite impossible, but I am beginning to think that nothing is impossible to men of good will. There is certainly a vast field to conquer for those who have faith enough to enter the fray and who see how to begin; and it is a work well worth attempting, for it would bring happiness into the lives of thousands—nay, possibly millions of workers. William Morris defined art—decorative art, he meant—as "the expression of pleasure in work," and surely to bring pleasure into work is a very great blessing to all men. I fancy that there is not much at present in the work of the big industries.

There is a great deal of work, however, which is not and, I believe, cannot be done except in small workshops, such work as is shown in this present exhibition, some of which is quite as good as the work of our forefathers, and better than a good deal.

I think it points an obvious way to that intimate relationship of art and industry which we desire. The small man is heavily handicapped at present because he is in a small way of business. He cannot get his raw material on favourable terms; indeed, in many cases it is very difficult for him to get first-rate material at all—the merchants will not sell it to him; and he cannot afford to lock up his small capital in material which he cannot use immediately. Transport is another great difficulty and expense, and another is that of marketing his wares. People have got so used to buying at great central stores they will not take the trouble to find out the small man; indeed, it is very difficult for them to do so, even when they want to. It seems, then, that we want small workshops for the production of many things, and big central stores for their distribution. But the distributing stores must not be in the position of employers, they must co-operate with the workshops. Indeed, I believe that real co-operation of small workshops will be found to be the best means of attaining our object; at any rate, I would suggest that to the Conference for further consideration.

The last thing I want to draw attention to is, I am sure, of real importance. Everything that we make is for some definite purpose—it has a utilitarian side. We shall all agree that a thing ought to serve its purpose perfectly, and be suitable and right for the material of which it is made. I would myself go further and say that it ought to express as fully as possible its utilitarian purpose, in the terms of the material used.



The best things in this exhibition seem to me to be good examples of this addition to all the other qualities that go to make an artistic whole. But artists are not, alas! always careful enough in this respect. Sometimes when the utility of the thing interferes with an idea or a fancy the former is sacrificed, much to the detriment of the whole. I know that often this is due to ignorance of how the thing is used. But I do not think that is a valid excuse. Surely it is not playing the game to shirk the trouble of ascertaining the rules.

I find, for instance, that many things are made for use in connection with Divine worship, some few of which are simply unusable and many very inconvenient, to say the least—things which are often beautiful in themselves.

I have seen such things as banners and processional crosses made tremendously heavy. These things have to be carried in a procession which may take a considerable time, and should be as light and well balanced as possible. Or chalices with ornament which might easily catch in the priest's vestment and upset, or of such a shape that they could not be lifted without grasping the stem, a thing which cannot be done in the ritual of the Mass. Or a ciborium, a vessel used for the reception of the Blessed Sacrament, which does not comply with any of the rules for its use. We could all probably make similar complaints about other things.

Now, I do not wish to suggest for a moment that artists are any more careless about such things than tradesmen or others. But as an artist is really the most practical of all people, it behoves him to set his house in order in such matters, especially as these restrictions are not a hindrance to artistic expression, and in many cases they are a real help.

#### AUSTRALIAN FEDERAL PARLIAMENT HOUSE.

THE President of the R.I.B.A. has sent the following reply to the letter from the Office of the High Commissioner published in our issue of October 6:—

October 9, 1916.

The Official Secretary, High Commissioner's Offices,  
72 Victoria Street, Westminster.

SIR,—The Royal Institute of British Architects begs to acknowledge the receipt of your communication of September 18 citing the cablegram received from the Commonwealth Government.

The Royal Institute fears that it did not make sufficiently clear the very serious objections which in its opinion exist against the resumption of the competition during the war. Owing to the fact that all the architects of Great Britain and the Allied Nations who are of military age, and large numbers also of the architects of Australia, Canada, and New Zealand, are now serving with the Forces, they would be shut out from any chance of competing. A competition in these circumstances would be practically confined to neutral countries and would be in no sense international, as advertised in the original conditions.

The Royal Institute feels very strongly that if the competition is resumed now the architects of neutral countries would have a preponderating advantage over those of the Empire and its Allies, and no real opportunity would be given to Australian architects, the architects of the Dominions, or those of the Mother Country and the Allies, who are taking their part in the great war. Apart from this grave objection on patriotic grounds, the narrowing of the area would obviously greatly minimise the chances of securing the best result.

The Royal Institute feels that the serious objections to which it has ventured to call your attention far outweigh the one advantage of finding employment on this particular building immediately after the war.—I am, Sir, your obedient Servant.

ERNEST NEWTON, President R.I.B.A.

Sir John Burnet has sent the following correspondence for publication:—

Commonwealth of Australia,  
Department of Home Affairs, Melbourne.  
August 9, 1916.

Sir John J. Burnet, LL.D., R.S.A.

SIR,—Resumption of this competition to select an architect for the Parliament House was announced by the Australian Government, August 2, 1916, and has been communicated to the 114 previously registered competitors and published generally.

The conditions are exactly as when first published June 30, 1914, per programme enclosed, except that enemy subjects will be ineligible, and that the date for receiving designs has been extended from March 31, 1915, to January 31, 1917, leaving the period for completion equal to that when postponed September 25, 1914.

I sincerely trust that nothing will prevent your honouring, in conjunction with the remaining selected architects from friendly countries, the Government's reconsideration of a previous letter dated November 10, 1914, and now accept as a most urgent requirement its official renewal of your appointment dated June 25, 1914, to act as adjudicator. The reappointment is being forwarded, and comprehends the same arrangements as previously entered upon, and the date of your meeting at London should accordingly be about March next.

I feel keenly that the Commonwealth's duty towards those of the profession who entered upon the work of the competition is to keep faith in every respect possible, and that, of course, implies retaining the highest standard of adjudication upon which they were induced to enter and, in many cases, to do a great amount of work.

Professor Wagner being unavailable, his successor has, in accordance with Condition 2.26, been nominated in the person of the Russian, Eliel Saarinen, of whose international standing naturally you do not need to be informed, and of whom you may recall among his score of competitive honours the second prize for the Australian Federal Capital City.—Yours truly,

(Sgd.) WALTER B. GRIFFIN.

Federal Capital Director of Design and Construction.

Commonwealth of Australia.  
Department of Home Affairs, Melbourne.  
August 15, 1916.

Sir John J. Burnet, LL.D., R.S.A.

DEAR SIR,—Following my cablegram to-day acquainting you of the decision of the Commonwealth Government to resume the Federal Parliament House Architectural Competition, I desire to reaffirm your appointment as adjudicator in accordance with Mr. Kelly's letter to you of June 25, 1914 (copy herewith).

I find from the papers left by my predecessor in office that in connection with the postponement of the competition that gentleman took the step of cancelling the arrangement with you. Such action is to be regretted, and the letter addressed to you in this connection is withdrawn. This Government is fully appreciative of the prestige which your support has already given to the competition and of the advantages to be derived from your continued association with the project.

With regard to the meeting of the adjudicators in London, it is now proposed that this should take place in March 1917.

I may add that, it being necessary to appoint a new adjudicator in place of Professor Otto Wagner, the nomination made by the Federal Capital Director of Designs and Construction will be communicated to you as early as practicable.—Yours faithfully,

(Sgd.) KING O'MALLY,  
Minister for Home Affairs.

October 6, 1916.

Walter B. Griffin, Esq.,

Federal Capital Director of Design and Construction.

DEAR SIR,—I am favoured with your letter of August 9 in which you confirm the intimation, cabled

to me by the Minister of Home Affairs on August 15, of the resumption of the Federal Parliament House Competition announced by the Australian Government on June 13, 1914; and you express the hope that I may be willing again to accept the position of one of the adjudicators to which I was then appointed, but which was cancelled by Mr. Archibald's letter of November 16, 1914, in which he intimated that the competition had been "indefinitely postponed" on account of the outbreak of war.

I gather from your letter that only 114 applicants were registered competitors in 1914, and that you are resuming the competition on that basis?

In the list of towns which are named in the "Conditions of Competition" (page 1) as the source of distribution of "conditions," one is German, one Austrian, four are British, one is Italian, one French, one Russian, one Spanish, one Swedish, and one American. As the German and Austrian have been deleted, only three belong to neutral countries, and the others are still at war. Before definitely accepting the appointment, I would like to know: (1) the different nationalities of the competitors originally registered; (2) the number of each nationality, and (3) whether you have any reason to believe that those registered from the British Empire, from Italy, France, Russia, and elsewhere, are likely now to be able to submit designs.

Here in any case our manhood up to forty years of age is engaged in military service, and many above that age are engaged in various branches of home service, and I understand that Australia has recently accepted "conscription" or its equivalent. It seems to me, therefore, that the chances of an international competition are remote.

As the two French Societies of Architecture have intimated to the R.I.B.A. that they do not desire to enter into competition during the war, I am communicating with Mons. Victor Laloux, my proposed French colleague on the Jury.

It seems regrettable that you did not consult with the adjudicators before determining to resume the competition and as the result published my name as adjudicator before getting my adhesion. Awaiting your reply, I am, dear sir, yours faithfully,

JOHN J. BURNET.

P.S.—Meantime I have cabled the Minister for Home Affairs as follows:—

"Letter received, have written. Kindly withdraw my name as Assessor pending your reply.—BURNET."

October 6, 1916.

The Hon. King O'Mally,

Minister for Home Affairs,

Department of Home Affairs, Melbourne.

DEAR SIR.—I have the honour to acknowledge your letter of August 15 confirming your cablegram of the same date in which you intimate the decision of the Commonwealth Government to resume the Federal Parliament House Competition, and in which you very kindly express the desire to reaffirm my appointment as adjudicator in accordance with Mr. Kelly's letter to me of June 25. By the same post I received a letter from the Federal Capital Director of Design and Construction intimating the appointment of Mr. Eliel Saarinen in place of Mr. Otto Wagner, and giving details of the competition of which I was not aware. I enclose a copy of a letter I have addressed to the Director on the subject, and must await his reply before accepting the appointment which you so kindly offer.

I need not I hope assure you of my continued and keen interest in the great work you have before you, but you will, I think, readily appreciate that I cannot definitely accept reappointment as a member of the Jury until I have some assurance that under present conditions the competition is really likely to be the international one originally intended, and until I know what my

colleagues (now Allies) feel in the matter.—I have the honour to be, your obedient servant,

JOHN J. BURNET.

P.S.—I have cabled you as follows: "Letter received, have written. Kindly withdraw my name as Assessor pending your reply.—BURNET."

## INDUSTRIAL LIGHTING BY ELECTRICITY.\*

[FOREWORD.—This Paper does not aim at illustrating new or special devices in the electrical lighting of industrial establishments, but rather at drawing attention to the points requiring consideration if the best results are to be obtained.]

To have suggested but a few years ago that the subject of industrial lighting was a matter of supreme importance, one worthy of the special attention of engineers, and for them to devote their time and special efforts to its study, would, indeed, have been amply sufficient to invite a criticism much more cynical than polite. Happily, however, the scientific study of artificial lighting for industrial and for other purposes appears to be in the forefront of modern progress, to the inestimable benefit of all classes of the community. If any justification were needed for giving the utmost prominence to this subject it would be found in the following statement:—That unsatisfactory illumination results in—

(1) An increase in the number of accidents to persons using the premises concerned;

(2) Possible damage to eyesight and to health;

(3) Diminished output of work;

(4) Imperfect discipline.

The terms "lighting" and "illumination" are generally rather mixed in their application; in fact, the former is commonly used where the latter is really intended. Illumination is, of course, a measurable quantity and is taken as the intensity of the light falling upon a given surface.

### Systems of Lighting (i.e., Lamps).

Of the many systems of electric lighting which have seen the light of day and added to the light of night, the ones at present claiming our attention most are arc lamps and incandescent lamps, the latter being subdivided into the carbon and the metal filament types, this last comprising the ordinary vacuum lamp of a reputed efficiency of about 1.2 watts per candle-power, as well as its very modern successor, the "half-watt" or gas-filled lamp. Each have their proper sphere of application, which it is the duty of the engineer to decide; and, without a careful inquiry into and a study of all the conditions peculiar to each case by him, waste and inefficiency inevitably result. Lighting no longer consists in merely hanging up lamps, but rather in a proper study of all the conditions obtaining, such as area, height, nature of work carried on, reflecting surfaces, system of current supply, &c. Proper switch control and a suitable system of wiring also enter more or less directly into the ultimate efficiency of the installation as a whole.

As each new type of lamp is put upon the market the average layman, whether he be a factory owner or not, is quite apt to suppose that the newcomer will shortly oust all its predecessors and become in undisputed possession of the field of artificial lighting. The untiring activities of the modern salesman, together with the enormous extension of technical advertising, are, no doubt, largely responsible for this. The new gas-filled electric lamp has not yet however ousted its parent, the ordinary vacuum-type metal filament. Arc lamps are still made and sold, and our old friend the carbon filament is with us still.

Overall efficiency or watts consumed per candle-power given out is usually the main if not the only point considered in the selection of lamps. This should not be; it should rather be the total cost per candle-power hour, which, of course, takes into account the first cost of the lamp and its life, as well as the cost of current.

\* A Paper read on October 18 before the Junior Institution of Engineers, by Frederic H. Taylor, Assoc.M.Inst.E.E., Assoc.M.Inst.M.E.

In a case within the author's experience it paid to use the old-fashioned carbon filament lamp with its wasteful consumption of  $3\frac{1}{2}$  watts per candle-power. This occurred in a factory where not only were more lamps lost by breakage than by ordinary burning out, but the current was supplied by steam-driven generators, the boilers for which were fed entirely on refuse which would otherwise have cost money to cart away.

#### *The Lay-out of Lighting Schemes.*

The tendency of the present day, in arranging schemes of artificial lighting, is, as in many other matters, to endeavour to crystallise the whole matter as much as possible, and in the case of lighting into three points: that is, height of lamp or lighting "unit," spacing distance, and the candle-power of the unit employed. One realises this from an inspection of the catalogues of the several enterprising firms who specialise in lighting material, and who publish so much information concerning their manufactures, for the guidance of potential purchasers.

Whilst useful enough and easy of application in new buildings, where the architect is willing to give consideration to the requirements of artificial lighting, in old buildings the points mentioned commonly have to be the subject of part consideration only, in order that other influencing conditions may have necessary consideration. Hard and fast rules for the lay-out of artificial lighting in an industrial type of building would therefore appear to the author as undesirable, even if possible of general application. It is true that progress is being made in the direction of deciding as to what is a suitable standard or intensity of illumination for various processes and kinds of work; but this is, and will probably remain, as the minimum illumination necessary, rather than the average. Lay-out must, therefore, be settled not on this point only, but on due consideration of the many other variable points which will be found to enter into almost every case one meets in practice.

A point one would specially draw attention to in this connection is the need of "general" as well as "local" or "individual" lighting in most, if not all, of the premises which the mechanical and the civil engineer have to deal with. Individual or local lighting of sufficient intensity for machine tools, benches, desks, &c., is necessary if each operator is to properly perform his duties. "General" lighting, on the other hand, is equally necessary, for by this proper supervision and discipline is possible and the safety of those persons secured who have to move about through passages and gangways. This need of "general" lighting is, even at the present time, often entirely overlooked.

The "general" lighting should be so arranged that a fairly uniform illumination is produced, say, with an allowable variation between maximum and minimum of 20 to 25 per cent., and where individual lighting is additionally provided the value of the former is considered sufficient if of the nature of about 1.5 foot candles. Compared with the recommendations of the Home Office Committee such a figure will seem luxurious; the recommendations referred to being:—

(1) .25 of a foot candle over "working areas" of workrooms (without prejudice to the illumination required for the work itself), and

(2) .1 of a foot candle in all parts of factories and workshops not included under (1) and where persons are liable to pass.

#### *Standards of Illumination.*

The figures quoted by various authorities show considerable variation in idea as to what is considered necessary, as the following extracts will show:—

In a drawing office	(a) 6 to 10 foot candles.
"	(b) 7 "
"	(c) 8 "
In a warehouse or stock room	(a) .5 "
"	(b) 1.5 to 2 "
In a foundry	(a) 3 to 4 "
"	(b) .4 of a foot candle (minimum)
In offices	(a) 4 foot candles
"	(b) 3 "

The author would suggest that the adequate standard of illumination is such as will allow the process to be carried on or the work to be done without eye-strain or special effort on the part of the operator.

In this matter personal prejudice often counts most, where the layman is the only authority concerned—many persons from sheer want of observation having no idea as to what is adequate illumination. As an illustration of this statement, it may be cited that the author on one occasion was asked to reduce the lighting costs in a certain building. A large joinery shop had been fitted with 16 candle-power lamps throughout, the foreman having insisted that these were absolutely necessary. One evening, after business hours, and in the foreman's absence, every lamp was changed to 8 candle-power. The foreman never noticed it and no complaints were heard.

In the near future probably the greatest importance of a standard of illumination in places coming under the Factory and Workshop Acts will consist in a Government standard of a minimum illumination everywhere. It is to be hoped that when our great country returns once more to the arts of peace that legislation of this character will be enacted, as well as other regulations incidental thereto, which will result in intelligent methods of artificial lighting, profitable to the owner and beneficial to the workman.

Such an event would bring into greater prominence the measurement of illumination, which, until recent years, had been practically left untouched. By measurements taken at regular intervals of time, any deterioration is detected and the cause of it removed. Deterioration may readily be so gradual as to pass unnoticed, but its results will inevitably occur; that is, imperfect quality or decreased output of work. The modern "illumination" photo-meter is an instrument which is simple, reliable, cheap in first cost, and well worthy of more extended use.

#### *The Essentials of Satisfactory Illumination.*

These may be summed up as comprising:—

(1) Adequacy; that is to say, the degree of illumination produced on the working surface must be sufficient for the work or operation to be properly carried on. On the other hand, over-illumination is quite possible and its effects are naturally harmful.

(2) The lighting unit or source of light must be so placed that the light does not strike directly upon the eye of the operator either when he is engaged in his work or when looking horizontally across the workshop or room. This recommendation of the Home Office Committee may be summed up in the words: "Light on the object and not in the eye." Thus "glare," whether produced directly or indirectly, should be avoided.

(3) The lighting units should be so placed as to prevent shadows on the work or heavy shadows about those parts of the premises to which the workpeople have access. This does not suggest that an absolutely uniform degree of illumination everywhere is necessary. The opposite is desirable as affording relief by contrast.

(4) Constancy, so far as the degree of illumination is concerned, is also necessary. Where the current is supplied from public lighting systems, there is usually little or nothing to complain of in this direction, but where the lighting receives its current from a private plant on the premises, constancy of illumination is by no means always prevalent.

In one very notable instance within the author's recent experience, the lamps in the most important part of the works, by their combined efforts, give any illumination from zero to maximum, and when the latter standard prevails it is just possible to see the requisite detail of constructional parts by the added brilliancy of a candle.

#### *Reflection and Colour.*

The value of these two factors in artificial illumination is commonly overlooked.

As regards the value of "general" reflection—that is to say, from the walls and ceiling—the Factory and Work-



shop Act has, by its insistence as to regular limewashing, done much to provide a cheap and effective reflecting surface of the highest order. The experiments carried out at the National Physical Laboratory by the Home Office Departmental Committee, in a room specially fitted out with different methods of lighting, may here be cited.

Three systems of lighting were tried:—Direct, indirect, and shielded. With the walls blackened instead of whitened, the reduction in illumination at the centre of the room was approximately 25 per cent. for direct lighting, 7 per cent. for indirect lighting, and negligible for shielded lighting. The influence of colour in artificial lighting is often overlooked. Lighting of a colour that will enable a person to not only do his work but remain at it for hours at a stretch without feelings of fatigue or depression is obviously desirable.

We are naturally inclined to light of a reddish tint or at least light of a colour associated with that end of the spectrum. The present lighting restrictions have in many cases appreciably altered the colour of both natural and artificial lighting, glass roofs and side windows being painted a deep blue. The effect of mental depression on remaining under blueish light for any length of time in some persons is most noticeable. Mercury vapour lamps when used for general lighting have been noticed to give different results with different people, where all other conditions were equal, one man, for example, insisting on the addition of an ordinary glow-lamp in order to carry on his work, whereas other workers considered this quite unnecessary.

#### *Direct or Indirect Lighting (?)*

As to which of these two systems should be chosen for factory lighting is a question which has been the subject of some considerable argument during the last few years. The use of metal filament lamps of high efficiency, candle-power, and intrinsic brilliancy has undoubtedly made indirect lighting possible where it would be otherwise quite unthinkable. The results of the Home Office Committee's tests in connection with this matter, and which have already been briefly referred to, would suggest that with indirect lighting the illumination was required to be greater than with direct lighting. Even where a comparatively uniform degree of illumination everywhere is required, this can be obtained by modern types of reflector whose characteristics are known to start with, combined with careful spacing of the lighting units.

#### *Reflectors and Fittings.*

Obviously for either "direct" or "indirect" lighting the most important item is the reflector, or, as it is more often called, the "shade." Until recent years, for incandescent lighting, nothing else scarcely was used but the shallow, conical enamelled iron or opal glass reflector. Custom clung very tenaciously to this, probably on account of cheapness. For years imported from "another" country, the best one could say of this type of shade was that it was badly made. As a shade, it shaded very little else than the ceiling. In combination with a carbon filament lamp it was bad enough, but with a metal filament lamp, with its higher intrinsic brilliancy and extended length of bulb, the evil effects of an un-screened light became infinitely worse. Happily with the war a limit was put on the supply of these goods, with the result that properly designed reflectors in glass or steel are more open to appreciation in spite of higher first cost. One refers particularly to the prismatic glass reflectors of the "Holophane" type and also to the pressed steel reflectors of the "Benjamin" pattern, intended more particularly for factory service. By the choice of a reflector either of the "extensive," "intensive," or "focussing" type, and with the spacing distance arranged with regard to height, it is easily possible to obtain any desired illumination, and with the source of light well screened from the eye.

With the use of tungsten lamps ventilation of the reflector or lamp-fitting becomes necessary owing to the high temperature of the filament, if the lamp is to last

any length of time, and with  $\frac{1}{2}$ -watt units the need in this direction becomes very greatly increased.

The details of fittings, apart from reflectors and shades, still leave room for improvement. Lampholders in particular might well be more substantially made, and with more area of contact in the electrical parts, ensuring cooler running with lamps of high candle-power.

Flexible cords for pendant fittings are frequently either poor in quality or deficient in section, or both, and frequently a good cord is used in an unsuitable position. When viewing modern installations in factory premises, one often wonders if proper factory types of flexible cord have yet come under the purview of installing contractors.

(To be continued.)

### HOW TO RESTORE STABILITY TO COTTAGE BUILDING.\*

IN order to arrive at any useful conclusion in regard to this subject it is necessary to inquire into the principal causes which have led us into the existing *impasse* and the obstacles which stand in the way of the solution of this greatest of all social questions.

An indispensable preliminary to the provision of cheap houses is the provision of cheap land. Although the land in this country is fixed in quantity and unchangeable in its essential character, the price it fetches varies from the crudest prairie value to the monstrously inflated prices which prevail in London and in every one of our great cities. In my own town, and within a radius of a mile or so of the central point, it ranges from tenpence to twelve pounds per yard. And this is absolutely due to artificial and extraneous conditions, which do not affect the actual commodity itself in any degree whatever. It is practically all unearned increment, which is, of course, permitted by our ancient and outworn laws; but the obvious effect is to make a few lucky owners rich beyond the dreams of avarice, and to impose a gigantic burden on the rest of the community. To endeavour to adjust the grievance by a one-sided system of taxation seems to me to be the line of most resistance, and the ultimate solution is quite clear. It is to be found in the principle of collective ownership. If all the land in this country were acquired at a fair figure and belonged to the State or to the municipalities, they could either sell or lease it at cost price, which might be averaged over special areas; or impose a price which they considered reasonable, retaining the increment for public purposes. I am all in favour of leasing it myself, but, if they sold it, they ought, of course, to retain the power to reacquire it, in case the public needs demanded this, on practically the same terms. If the private speculator in land were eliminated once for all, and if the various authorities were able to provide in every town at a moderate price the land required for any necessary shops or houses, works or public buildings, one tremendous obstacle to building enterprise would be removed for good. And, if they owned it, they could lay it out exactly as they pleased, without the difficulties and the complications they have got to face at present in preparing their town plans, which, owing to the tenderness we show to private interests and the universal anxiety to lessen opposition from existing owners, seldom come within a measurable distance of our best ideals. The number of houses to the acre, the width and the direction of the roads, the preservation of amenities and the selection of sufficient open spaces in the best possible position would then be left entirely to their own judgment and public spirit. And town planning, on the broadest and most satisfactory scale, would gradually become a matter of course. As long as the land required for public purposes remains in private hands we shall be faced with some at least of the old difficulties; but the moment the municipality, con-

\* A Paper read at a National Conference of Public Utility Societies, held at the offices of the Garden Cities and Town Planning Association on Friday, October 13, by Alderman Arthur Bennett, J.P., Secretary, Warrington Garden Suburbs, Ltd.

fronted with the need for new houses or other buildings, is able to say, "Here, at any rate, is the land at a reasonable price," the way begins to clear. Under the Town Planning Act we have already power to acquire land in undeveloped areas beyond our actual immediate requirements, and, in all our complicated tangle of unwise and stupid laws, there is not any more absurd than that which compels a corporation, after making a street improvement, to immediately dispose of any surplus.

Municipal or national ownership, or a combination of the two, may, however, be regarded as a counsel of perfection. That is exactly why I urge it, and why I place it in the very forefront of my proposals. I believe in counsels of perfection.

"We needs most love the highest when we see it." I am sick of the hideous mess which we have made of Merrie England, and there is a new desire in the hearts of all good citizens to build a new and better state on sound foundations. We want to aim high and to be satisfied with nothing less than the best.

But we cannot build our new Utopias in a day, and, as practical people, we must not in the meantime neglect any minor measures of amelioration. And this brings me to various practical difficulties which, quite apart from the ultimate solution of public ownership, we ought if possible to remove.

To begin with, the land itself is subject to invidious and unnecessary burdens.

If you desire to buy it you are saddled, first of all, with the cost of the present antediluvian methods of conveyance, and you have to pay to an exacting Government a duty which is twice as much as you would have to pay if you were buying stocks or shares. The extra tax is quite unfair on any grounds, and the financial gain is trivial in a day when we have learnt to think in hundreds of millions. And why should the purchase of land (or of shares for the matter of that) be liable to any tax at all?

Machinery already exists, I understand, for setting up, in every town which wishes it, a Land Registry, and I believe that such registries already exist in London and in Yorkshire. We have lately been invited by the Chief Registrar to set up a registry in my own town; but the local Law Society (who met us very courteously in the matter) informed us that, in Warrington at any rate, there would not be sufficient work to make the registry self-supporting; that the cost of universally establishing titles would be very great; that, even when a plot of land has been registered under the Act, the title is not guaranteed; and that the actual saving, as compared with the more usual method, is comparatively small. They added that the London Registry is far from popular, and that several of the London boroughs have expressed a wish to be relieved from its control. But, if this be so, it is surely an argument against the present Act, and not against my main contention. I venture to assert that, if every title in England were once definitely ascertained and registered, if necessary at the expense of the State; if a certificate implied a guarantee of title; and if, instead of setting up a separate court in every town, with separate offices and officials, the work were switched on to the County Court or to the Town Clerk's department, registration would be not only cheap but popular, and one undoubted difficulty in the builder's path would be removed. Why should not land be bought and sold as readily as stocks and shares? And why should every purchaser and every mortgagee be saddled with a heavy lawyer's bill? The solicitors who met us frankly said that the task of ascertaining all existing titles and having them definitely recorded would be highly profitable to them, and that it was the next generation of solicitors who would suffer. We wish the profession well and do not grudge them any adequate remuneration for their extra work, but I think, in this case at any rate, we might very fairly leave posterity to take care of itself. It is gratifying to be able to say that Mr. Walter Long appears to be of our opinion, for I had the privilege of hearing him declare to the recent deputation that he thinks

"there is room for simplification of the laws and terms on which land is transferred for any purpose."

But, when we have obtained our deeds and paid our stamp duties and our lawyer's bills, we are not by any means out of the wood. When we had actually got possession of our own estates, at Grappenhall and Great Sankey, we had still two permanent charges to meet, the land tax and the tithe. In many instances there is an annual chief rent to be paid as well. The first thing we did, of course, was to redeem the land tax, another stupid and unnecessary burden handed down to us by the dead hand of the past. But the tunes (rectorial and vicarial) still hang about our necks as a perpetual burden, small indeed, but irritating, and all the more because the actual payments vary in amount. Of course I know that both these charges were taken into account when we purchased our estates, but my object is to help to make the ownership of land as simple as possible and to remove unnecessary complications, and I venture to suggest that the land tax should be abolished or redeemed as a matter of compulsion, and that all tithes should be commuted. Custom and tradition in this country have made things difficult which ought to be extremely simple, and in every department of our national life we ought to set ourselves to the task of gradually "unwinding the" accursed "chains" which fetter our activities and strangle our normal and our natural life.

But the troubles of the man who buys a plot of land for building (or, indeed, for any other purpose) do not end with the payment of law costs or stamp duties or chief rents, of land tax or of tithes. If the land may fairly be considered as eligible building land, the unfortunate owner becomes liable to an annual tax of a half-penny in the £ upon the capital value. This is not much, and the intention was, I understand, to discourage people from holding up their land unnecessarily; but it operates quite unfairly. There are in Warrington some 1,476 acres of undeveloped building land. From 1906 to 1911 the average number of houses built per year was 228. In 1911 the number was 221. It fell in 1912 to 99; in 1913 to 87; in 1914 to 58; and last year to the infinitesimal total of 15. Even at the average normal rate, and with our present maximum of 20 houses to the acre (which, in my opinion, is much too high), it would take 128 years to absorb the whole of the land available. And in the meantime every owner except the man who happens to be able to sell the land required for any particular year would still be saddled with the tax, however anxious he might be to sell, and the last owner of all would have to go on paying it for 128 years. That, surely, is not fair!

But we will now assume that the builder has acquired a plot of land and has erected on it a number of houses. He has built them to sell again, and presently he may be fortunate enough to find a purchaser at a fair profit. That profit is, perchance, his livelihood. Is he allowed to retain it? On the contrary. The tax collector comes along and claims one-third of it (after certain deductions) under the head of unearned increment. Normally and in intention the unearned increment was supposed to apply to any rise in the value of the land, apart from the buildings, which was not due to the exertions of the builder, but to the growth of the neighbourhood, a perfectly permissible ideal. But it seems to be more or less impossible to differentiate between the two, and so we hit the builder and take a large proportion of the profit, which he can fairly claim to have actually earned as the direct result of his own efforts. Is it any wonder that he kicks against a law so harsh and so one-sided? This, in the words of Mr. A. W. Shelton, than whom it would be difficult to quote a better authority, is "the original and principal cause of the greater part of the housing shortage" at the present time.

The grievance is indeed admitted, but nothing has been done, though Mr. Long, in the interview already mentioned, said that he "regarded the Government as pledged to carry a measure of reform, and he hoped that

when it came it would be complete, because he was confident that it was necessary."

But a promise to amend the law was made so long ago as 1914, and I really wish the Government would hurry up! For in the meantime the housing famine gets continually more acute, and Mr. Shelton estimates that there is a present deficiency of 400,000 cottages, and that the shortage is increasing at the rate of 200 per day, or 75,000 per annum. The figures I have given for Warrington are eloquent indeed, and in a matter of this vast importance delays are dangerous.

(To be concluded.)

## FIRE PROTECTION OF AMERICAN SCHOOLS.\*

By Mr. WILLIAM B. ITTNER.

THE intense commercialism of our times has brought to the highest state of development our office buildings, factory buildings, and commercial buildings of all types; but school buildings, though playing, perhaps, the most important part in the development of our people, have been and still are in a great measure sadly deficient. It was Edward Atkinson, I believe, one of our most noted authorities on fire protection, who stated that "In 1899, 485 college buildings and schools were burned, and the rate of destruction is increasing." "I have examined several college buildings, memorial halls, and the like," said Mr. Atkinson, "and have never found a class in which heavy damage or complete destruction had been more adequately provided for by the masters of combustible architecture."

It seems strange that such conditions should exist in buildings devoted to the housing and education of the young, but the truth of Mr. Atkinson's statement must come home to all who have had to do in any manner with the management or survey of school buildings. Why such conditions are tolerated seems difficult of explanation, except on the grounds of sheer ignorance of the requirements or disregard of them in the interest of false economy. It requires a considerable jolt generally to awaken the public interest and conscience. Although the lessons of Collinwood and other similar disasters have been costly in the extreme, they have not been without their compensation in arousing the public and school authorities everywhere to a full realization of the conditions prevalent in our schools. The investigations which have followed these disasters warrant the assertion that fire protection in existing school buildings—and when I say existing buildings I mean buildings built some years previous to this time—is needed generally throughout the country, and such investigations have in some instances brought substantial results. The results in a great number of cases, however, have been more in the direction of means of escape from fire, and legislation to enforce the same, than in safe building and a permanent movement looking to fire protection.

Boards of education, yielding to popular demand and the clamour of the public press, have been satisfied to erect buildings with questionable means of exit, inadequate stairways of combustible construction, and one or more fire escapes, which are believed to be all that is required for the safety of their occupants in case of fire. The success of such means of exit, when the trial comes and the pupils are in a panic, is very questionable.

After an extensive study of the matter, the best authorities agree that there should be no fire escapes on the ideal school building, but that ample and well-located inside stairways are the only means of emptying school buildings promptly and safely, and that this, together with making the buildings, both old and new, immune from fire through the application of modern methods, should be the aim of all school authorities.

It is held by many that the proper protection against fire can be had only through the use of fireproof materials; but all school buildings cannot be erected fireproof, nor is it necessary that they should be to make them safe, if proper methods of construction are employed. Where funds will not permit the erection of fireproof buildings, it will require but a small additional outlay to fireproof the corridor floors and stairways and, where it is good practice, to separate the boiler and heating plant from the building. It is not absolutely necessary that this should be done, for at a small additional expense such rooms can be isolated in a manner to eliminate all danger.

School buildings should be fireproof whenever funds will permit; but, while this practice should be encouraged generally, the safety of our building depends quite as much upon its general plan, the location of its stairways, corridors, and exits, the disposition of the rooms, its height, and the site upon which it is located.

The building should be low, preferably not more than two storeys above the basement. This, of course, is not possible in large cities where buildings of three or more storeys are required to provide the necessary accommodations. Such buildings are rendered safe by adequate stairways and exits and the most modern fireproofing methods, but they are the exceptions and not the rule, and we will address our remarks to general practice and not to special problems.

If large in plan, the floor areas in the buildings should be reduced by masonry walls, thus limiting the areas open to fire. The stairways, ample in number, should be located in a manner to reduce horizontal travel distance from classroom to exit, and the exit should terminate at the street or yard level, and practically outside of the building, in order to obviate passing through halls or corridors before reaching the open air.

Stairways in proper number should always be provided, and no stairway should be more than five feet in width. Stairs should always be in two runs from storey to storey, should have broad landings, and there should be a handrail on the balustrade as well as the wall. Such a stairway will enable two files of children to go down abreast in perfect order without pushing or crowding.

The location and number of stairways is a matter of great importance, and this is one of the serious weaknesses in our school buildings, as the number is often reduced in the interest of economy. Stairways should be separated and arranged to serve definite groups of rooms, and located for direct lines of travel from classroom to stairway. Thus a natural division of students is formed and congestion avoided. A closed balustrade of proper height is to be preferred to the open balustrade or boxed-in type of stair, and under no circumstances should the space under a stairway be used for storage.

The number of stairways and exits in a school building is a matter of calculating accommodations for the number of persons and the number of floors to be served. It is a problem for the individual building, and all that can be given is a working rule suggested by practice and experience—namely, that 120 persons in line, two abreast, can pass a given point in less than one minute. If, therefore, stairways and exits in sufficient number are introduced and properly placed to empty our building in three minutes or less, we are entirely safe.

In the matter of stairways and exits, the use of what is customary by the pupils a number of times each day during the entire school year will always prove the most efficient means of egress in any emergency.

The importance of the corridors or halls in the planning of school buildings is very often overlooked by school authorities, and in a great many buildings their width and natural lighting are sacrificed in the interest of additional classroom space. This is a serious mistake, as corridors should be wide enough to prevent congestion; and, where no fixed rule can be laid down, it may be said, in general, that for main corridors twelve feet

\* Abstracts of Papers read at the annual meeting of the National Fire Protection Association of the United States.



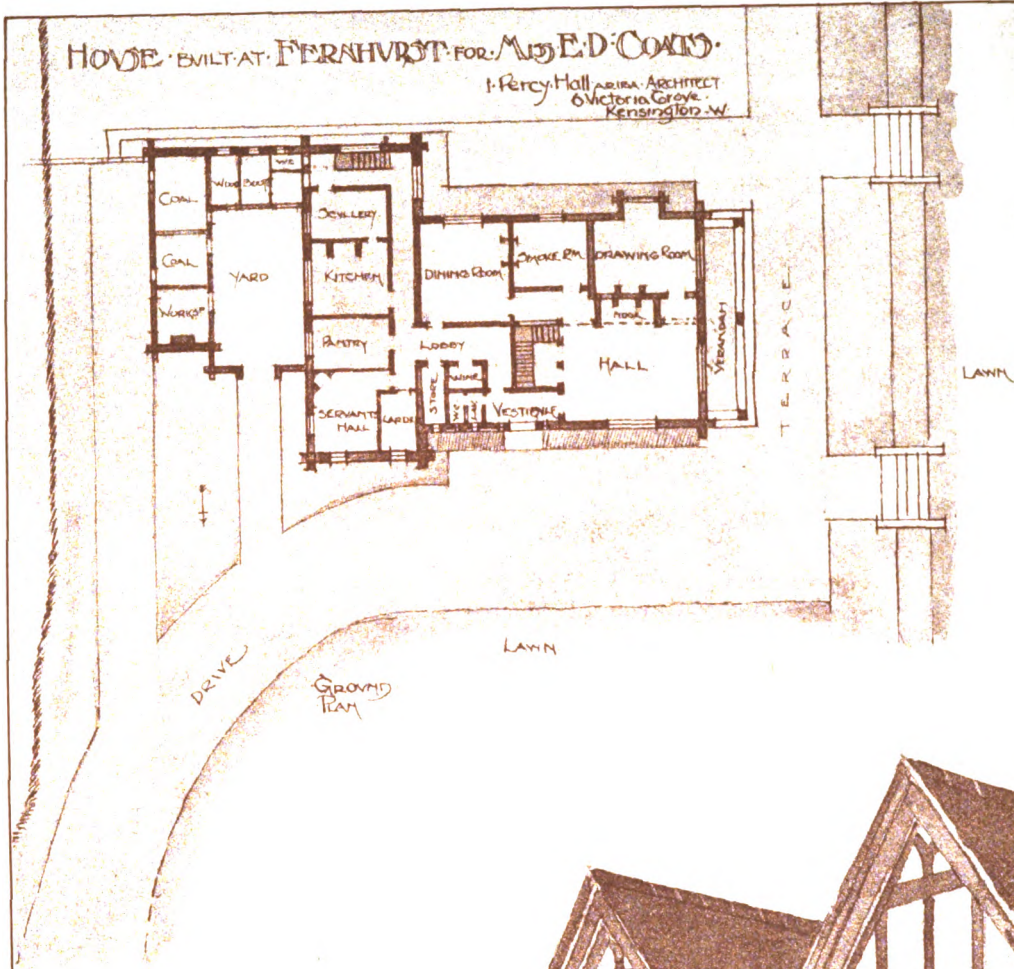
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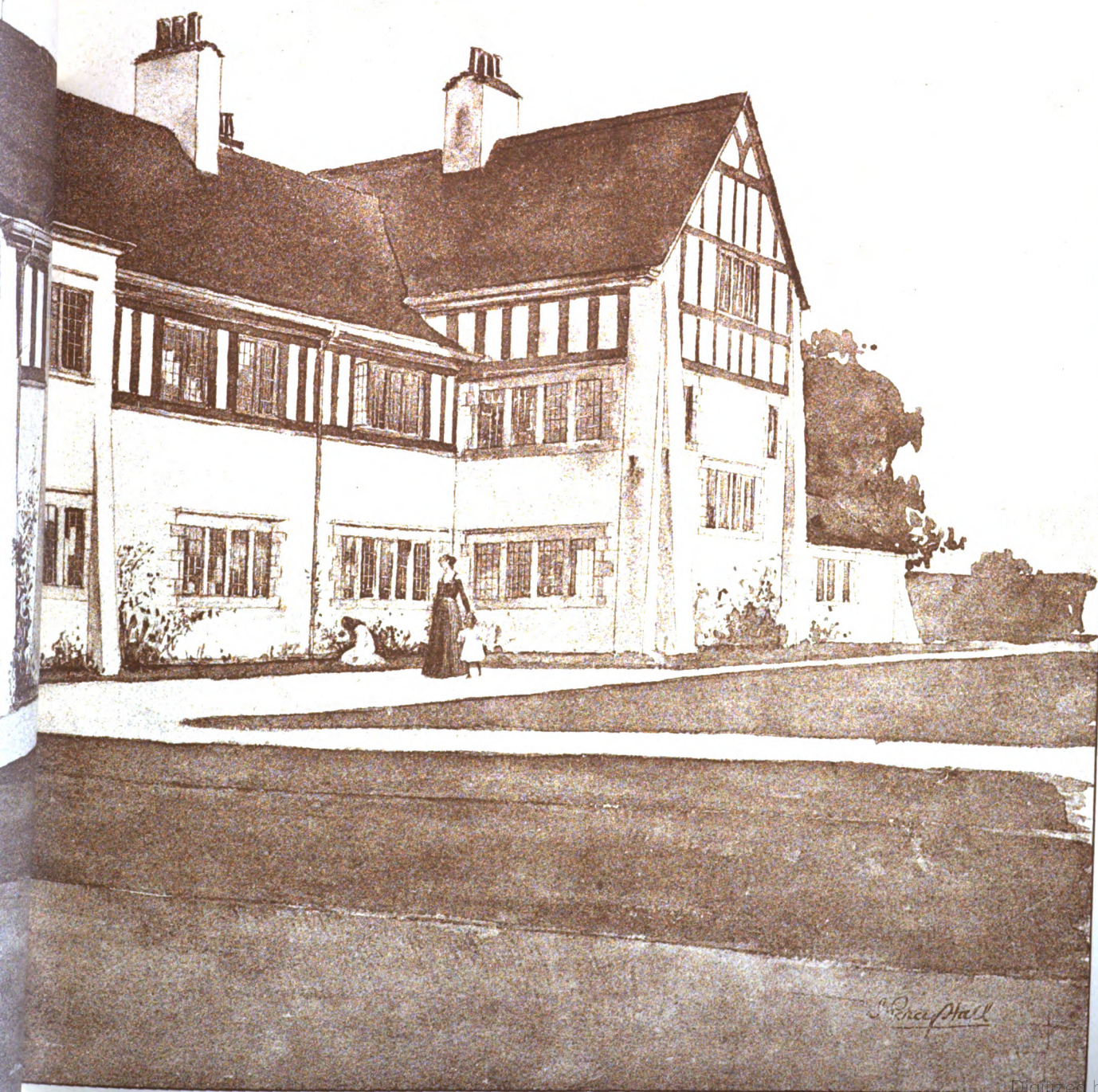
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Oct. 27th 1916.



*S. Sprague*









*The Architect*, Oct. 27th 1916.



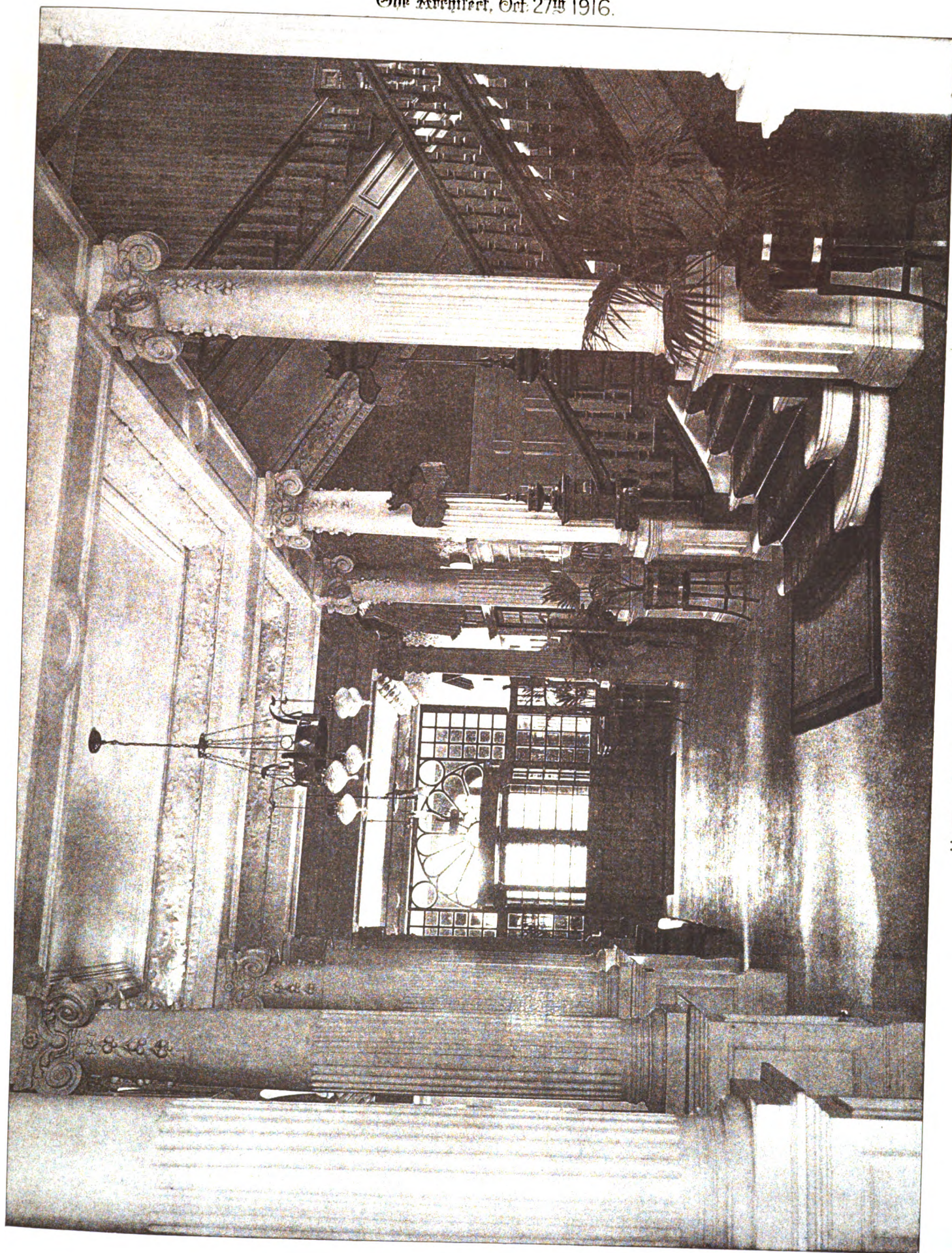
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**MR. CHARLES T. RUTHEN, Architect.**



The Architect, Oct. 27th 1916.



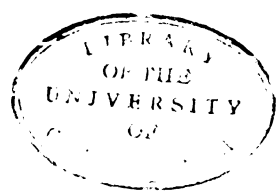
HOTEL CAMERON, SWANSEA: ENTRANCE HALL.

Mr. CHARLES T. RUTHEN, Architect.

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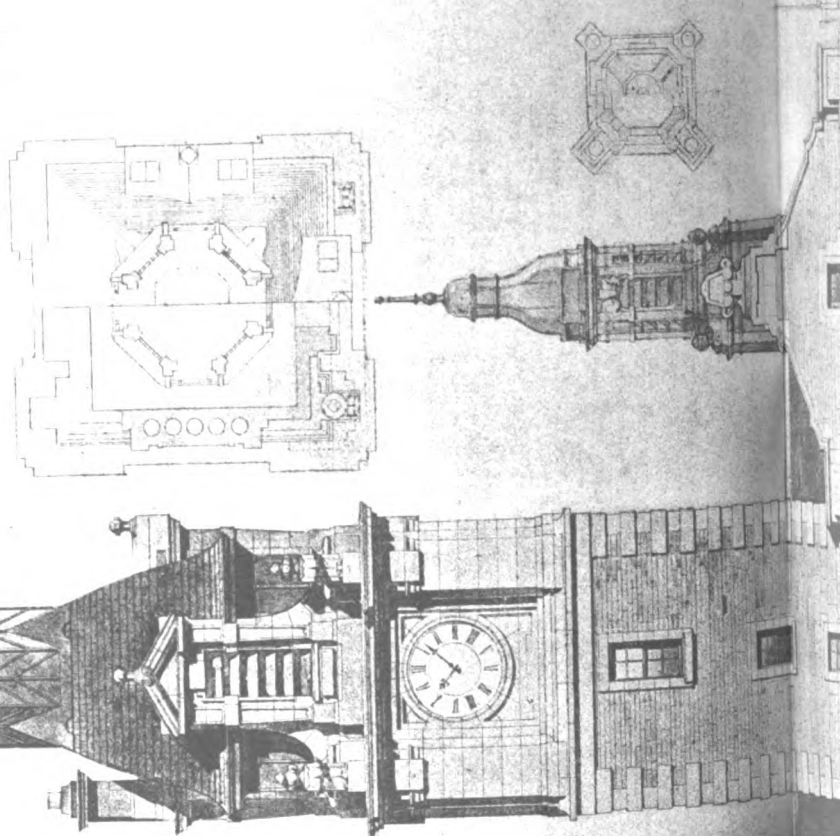


The Architect, Oct. 27th 1916.

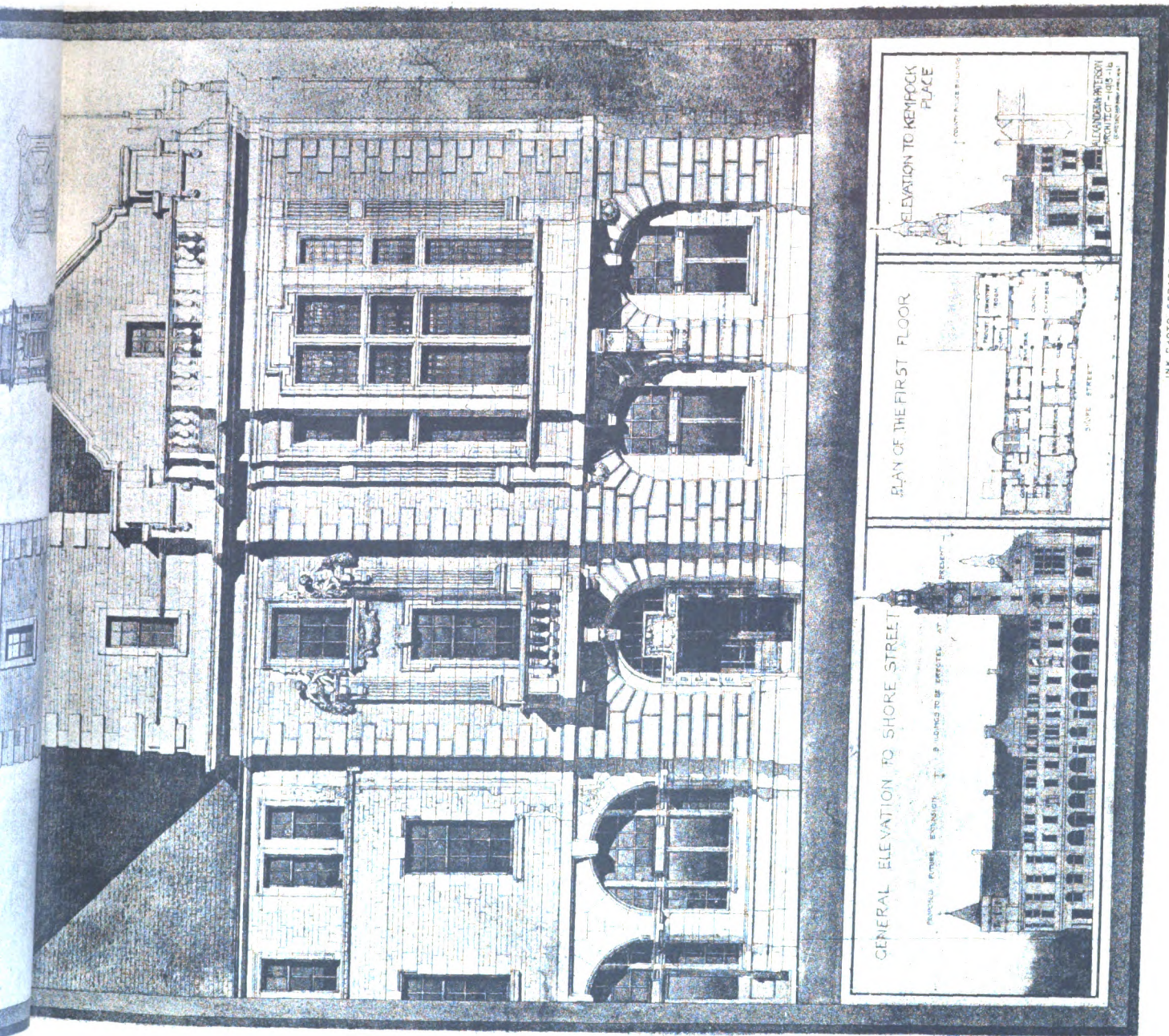
# MUNICIPAL BUILDINGS GOUROCK.

DETAIL OF  
THE TOWER

AND COUNCIL CHAMBER  
GABLE.







MR. ALEX. N. PATERSON, M.A., A.R.S.A., F.R.I.B.A., Architect.

(Royal Scottish Academy, 1916.)

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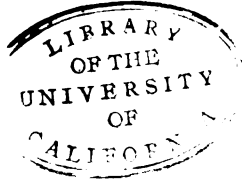
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may be taken as a minimum, with eight feet for side or secondary corridors, while fourteen feet and ten feet would be better. In high schools the minimum width for main corridors should be fourteen feet. The practice of placing wardrobes in corridors should be condemned on sanitary grounds alone, to say nothing of the congestion and confusion resulting from having them so located; and the practice of lining the corridors with lockers is open to almost as serious an objection.

The lighting of the corridor is carried to the extreme in Continental schools, because it is lighted practically the entire length. The economy of the plan, though, is not as great as it is when the corridors are closed in for a portion of their length. In the old-fashioned school, or dumb-bell school, the corridor was lined with rooms on both sides, and the stairways were located at the two ends. Such a corridor had very little light from the ends and borrowed its light from the schoolrooms. That type of school is gradually going out of date, and we are building more and more the open plan, or approaching more nearly what might be considered this ideal condition.

The classroom should have but a single door to the corridor, and this should be at the teacher's end of the room. I know in that there is considerable divergence of opinion, but this arrangement will give the teacher perfect control of the pupils under all conditions, and prevent them stampeding from the room, which is very apt to be the case if the room has a second doorway or an exit through the wardrobe.

Basements or cellars, as well-known fire-breeds, should not be found in buildings designed for the highest degree of fire protection. A better practice is to make this storey practically level with the grade; give it good height and provide it with a window surface equal to or approximating that of the classrooms above. Such a storey provides, at the least expense, the space for the heating and ventilating plant, rooms for manual training, domestic art, and other rooms designed for equipment more or less hazardous.

The boiler-room, fuel-room, and room for the heating apparatus should be cut off effectually, and all should be enclosed in masonry walls, fireproofed at the ceiling or floor above; the best practice precludes any doorway from these rooms to the remainder of the basement, and, while this may prove of some inconvenience to the janitor, it provides maximum safety. Such doorway, if one is provided, should be a standard automatic closing fire door. In the arrangement of the boiler and fuel rooms ample space and height should be allowed to give easy access to all parts of the apparatus. Wood should be excluded entirely from this portion of the building, and there should be adequate natural light and ventilation.

In conclusion, I think it may be stated with some authority that a school plan which involves correct principles of natural lighting, sanitation, and hygiene, as now well understood, must by the very nature of such a plan, be reasonably safe in its general arrangement. All that remains, then, is the intelligent application of modern fire prevention methods in determining the construction and detail in order to have our buildings not only immune from fire, but safe and comfortable to live in.

By Mr. C. B. J. SNYDER.

WHILE it is true that in the city of New York we for many years prior to 1908 erected all our new school buildings of the standard fireproof construction type, in accordance with our building regulations, yet there were many points upon which there were no rules or data, especially as to stairway and exit.

In addition to this, we constantly realised that our greatest work lay really in a reduction of the fire hazard and the increase of safety of the occupants in the older school buildings.

Here, again, there was a lack of data upon which to

work, and it was, therefore, during a period of several months in the years 1908-1909 that I acted as chairman of a committee consisting of engineers from our five building bureaus, together with a deputy chief from the uniformed force of our Fire Department.

Our object was the preparation of definite standards and rules for fire prevention work in our public schools, as applying to brick structures of both fireproof and non-fireproof type.

After first determining to continue the practice of protecting all vertical openings and the use of fireproof stairways enclosed on each floor with smoke and fireproof partitions, we then considered the problem as to the fixing of a standard whereby judgment might be reached even by the layman as to whether or not a building was sufficiently equipped with stairways to render it safe for occupation.

This had for its further object the prevention of the filing of promiscuous orders against a building for the construction of outside fire escapes, the utter uselessness of which, as compared with the fireproof enclosed type of stairs, has become quite well recognised.

After weeks and months of consideration, in which numerous premises were inspected and fire drills witnessed, a unanimous decision was reached that each building should have a sufficient number of fireproof stairways, enclosed with fireproof materials, to permit of its occupants vacating in not more than three minutes a non-fireproof building, and not to exceed three and one-half minutes a fireproof structure.

This limit of three and one-half minutes might, so far as safety is concerned, have been exceeded.

The time was thus fixed because of the desire of the officials of the Fire Department that the premises be entirely vacated by the time the first piece of apparatus arrived.

I believe that all school buildings, whether one or more storeys in height, should be of fireproof construction throughout.

The comparative increase in cost between the fireproof and non-fireproof type is continually being lowered, due to improvements in methods and materials, so that under normal market conditions the authorities in every community, whether large or small, should refuse to authorise the construction of non-fireproof school buildings.

In this they will have the support of the people, if there be placed before them the fact that in the erection of a properly planned fireproof public school building there is not only a guarantee as to the safety of the investment, but also that which is of greater importance, the absolute peace of mind as to the security of their children in attendance.

Further, that the difference in cost will be largely offset by the reduction or elimination of fire insurance charges and an annual saving in the cost of repairs and maintenance.

I am not in favour of constructing school buildings of more than four storeys in height because of the stair-climbing involved. Height alone does not prevent their being planned for safety as to occupants and the practical elimination of the fire hazard. Careful planning will first of all take into consideration the number, location, and width of stairways.

The number will be fixed by the total capacity of the building which must use stairways for exits.

Our practice has been to estimate stair requirements on the basis of fifteen square feet per pupil for all rooms or spaces used for academic or other instruction.

We have found that the highest standard of service is obtained with a stair four feet in width for an elementary school and five feet in width in buildings used for high schools or other form of occupation.

This width provides for not more than two lines abreast, each with a handrail.

All stairs, except perhaps those forming the main entrance, which should not extend above the first storey, should be enclosed with fire and smoke-proof materials

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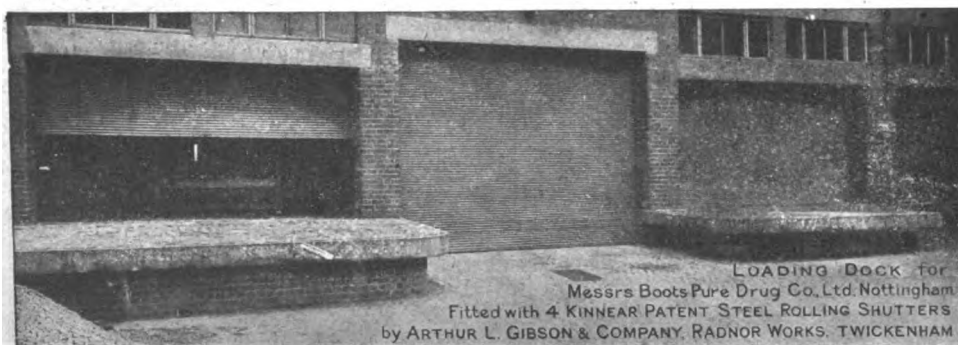
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throughout, access to the enclosure being by means of self-acting kalamein doors.

All stair doors above the first floor or basement where exit is had should open into the stairway following the line of flow of pupils. At the first storey or basement they should open out toward the exit gate. All exit doors should open out.

Exits should be planned on the basis of stair service and such further capacity as circumstances might seem to demand in order to prevent crowding or congestion.

This list can be easily lengthened by anyone familiar with the conditions; but it is not too much to say, in considering the planning of school buildings for safety, that we should give the greatest attention to the making safe of those of the old types which have been the cause of such awful loss of life.

I believe that architects and engineers are both fully alive to the situation as relates to new construction, which is by far the more attractive and pleasant work, but I beg of you to still keep before the people the absolute need of the taking of prompt measures to make safe the older buildings in which by far the greater number of the school children of this country are taught.

### THE LEGAL QUALITY OF DRAIN PIPES.

A TEST case on what are "good and sound" pipes for sewage drainage purposes was heard at the Croydon County Police Court on Saturday, at the instance of the Carshalton Urban District Council. The defendants were Messrs. S. & G. Mizens, of The Culvers, Carshalton. They have recently erected new workshops, and were alleged to have committed a breach of the local by-laws in having failed to construct the drains of "good and sound pipes, formed of glazed stoneware, heavy cast iron, or other equally suitable material."

The drains, according to the evidence, connected the lavatories with a cesspool, in which work between 200 and 250 stoneware pipes were used. Mr. Lovelock (Clerk to the Council), who prosecuted, said it was admitted that these pipes were known to the trade as "seconds." In 1912 the manufacturers of drainpipes jointly came to an arrangement to brand all "seconds" with a black band. This was to indicate, in the terms of a circular they issued, that they were damaged or defective, and should not be used for foul water, drainage or sewage. As the circular could not be admitted as evidence, Mr. Lovelock produced later a memorandum of the Albion Clay Company (vouched for by a representative of the firm in the witness box) which referred to certain quantities of "damaged or defective stoneware drain pipes, generally known as second quality, extensively used for surface water drains." Expert viewers, according to the prosecution, classified the pipes after coming from the kilns, and the "seconds" were all faulty in one respect or another. There were such defects as lack of glaze, the projection of scoria (commonly called "burrs"), imperfect shape, the spigot improperly fitting the socket, and fire cracks. The "burrs" were in particular objected to as excrescences which, by arresting the flow of matter, might easily cause a stoppage of the drain. If "seconds" were allowed, Mr. Lovelock contended, it would revolutionise and make very difficult the work of public authorities in superintending drainage. The saving in cost between second and first-class pipes—a witness put it at about  $\frac{1}{2}$ d. per foot—was so little that "seconds" might at any time prove a very dear investment for sewage drainage purposes. Incidentally Mr. Lovelock mentioned that there was a difficulty in getting manufacturing firms to attend and give evidence against their own customers.

Mr. W. W. Gale, surveyor to the Council, said he regarded both London and country made "seconds" as equally contrary to the by-laws. If defendants' drain had passed a water test, it did not necessarily mean

that no defects existed in it. He was greatly surprised to hear that in Croydon, Lambeth, and Bermondsey "seconds" were passed. He held that all drains, whether on a farm or in the street, should be of the best possible quality. In the absence of the black band he would have passed these drains after a water test.

Henry Ludlam, of the Albion Clay Company, said "seconds" were sold simply for surface water drainage, and he did not consider they complied with the by-laws. He knew of no council who had passed "seconds" for sewage work. When his firm had the Bermondsey contract the goods supplied were of the best quality.

Robert Chart, surveyor to the Coulsdon and Purley Urban District Council, and Sidney F. Carter, surveyor to the Beddington and Wallington Urban District Council, each gave evidence for the prosecution.

Mr. H. T. Peard, for the defence, pointed out that only one witness had spoken as to the actual pipes in question.

All the witnesses for the defendants were of opinion that "seconds" were "good and sound" pipes within the meaning of the by-law.

Christopher Chart, F.S.I., surveyor, who had examined the pipes left over, said he would have no hesitation in using them himself, or passing them on behalf of a public authority. He had no personal knowledge of any local authority passing "seconds." Cross-examined, witness admitted that when concerned with sewage drainage work he generally specified pipes of first-class quality, because he did not think the saving was worth the risk. By that he meant the possibility later of having to change one of the pipes, the cost of which would be far greater than the original saving on the price. There was no risk if "seconds" stood the water test, as these had. Sometimes there was a doubt that they would.

George G. F. Carter, Borough Engineer of Croydon, said the practice of his department was to give two water tests to ascertain whether it was a good job. They relied on those tests alone, without any concern as to the makers of the pipes, for one firm's "seconds" might be as good as another firm's "firsts." He knew "seconds" had been passed in Croydon, but could not off-hand give a specific instance. He did not consider there was any danger to the public health in doing that.

H. D. Searles-Wood, F.R.I.B.A., F.R.S.I., architect and surveyor of forty-five years experience, formerly for twenty-five years Surveyor to the Epsom Urban District Council, said the pipes left over from this particular job were quite good. He placed no stress on trade marks, believing every job should be judged on its own merits. Cross-examined, he did not think he had ever specified for "seconds."

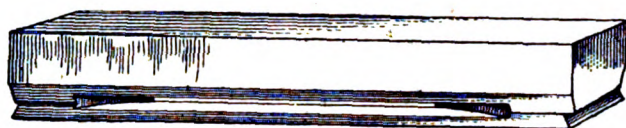
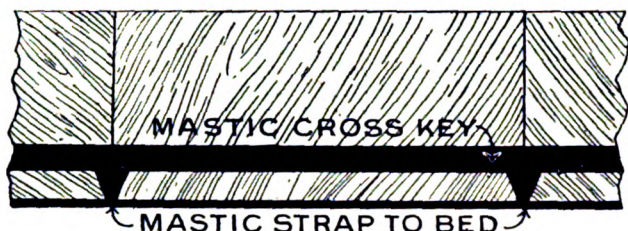
Henry Hemmings, of Nutfield Road, Thornton Heath, the contractor for the work, declared that these pipes were as sound as any he had ever seen. The witness gave instances of "seconds" being used in Croydon for house drainage. If he took the marks off the surveyors would not know the pipes. (Laughter.) Pipes were never fetched out for "burrs." It was through the cement left inside not being cleaned out.

The Bench dismissed the case, as it had not been proved that these pipes did not conform with the by-laws.

Mr. Peard asked for costs, but the Chairman (Mr. Arthur Spurgeon) said he did not think it was a case for awarding them.

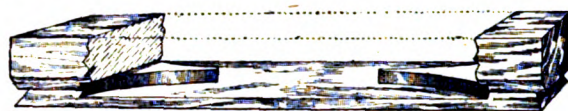
In addition to the awards announced in April for papers read at the meetings, the Council of the Institution of Civil Engineers have made the following awards for papers published in the Proceedings without discussion during the Session 1915-16:—Telford Premiums to Messrs. Hubert Mawson (Liverpool), T. W. Keele (Sydney), R. W. Holmes (Wellington, N.Z.), W. Fairley (London), J. M. Greathead (Johannesburg), T. C. Hood (Manmad, India), and J. B. Ball (London); the Manby Premium to Mr. W. C. Cushing (Pittsburgh, U.S.A.); and the Crampton Prize to Major C. E. P. Sankey, D.S.O., R.E. (London). The Indian Premium for 1916 has been awarded to Sir John Benton, K.C.I.E. (Eastbourne).





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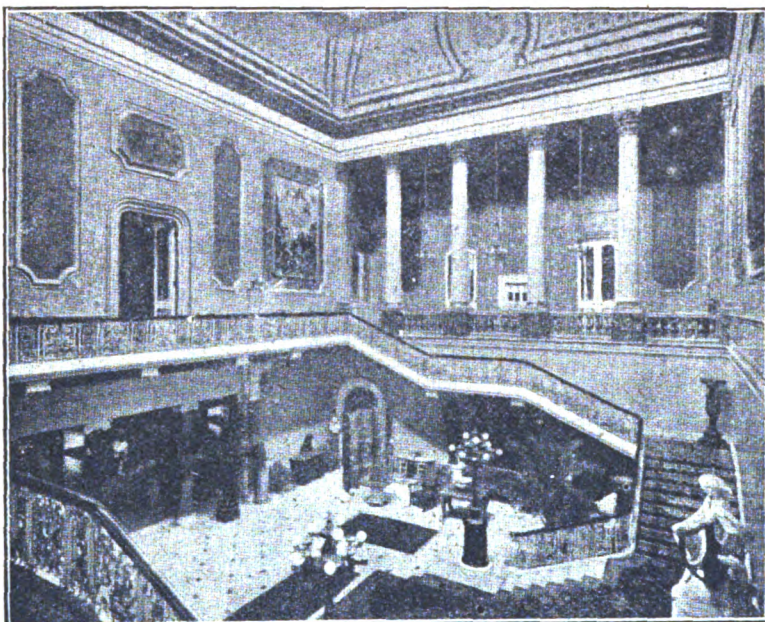
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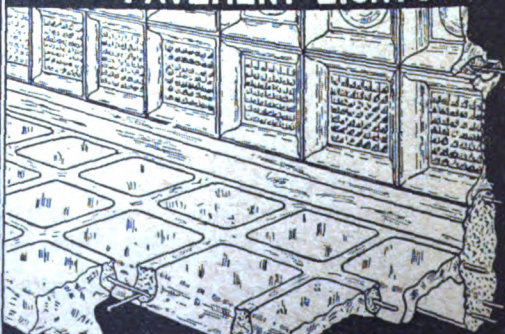
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## Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

### Dickens and St. Dunstan's Giants.

SIR,—Was the Fleet Street of Dickens's day, with its toy shop, waxworks, and Miss Linnell's needlework exhibition, not to mention the St. Dunstan giants, more attractive than it is to-day? Regarding the latter in "David Copperfield," published in 1849, we read of the hero and his aunt stopping "at the toy shop . . . to see the giants of St. Dunstan strike upon the bells." In "New Remarks on London," 1732, I find the following account of these "giants":—

" . . . on the south side of St. Dunstan's Church, the Ornament of that Church, viz., a Nitch and Pediment at the east end; and of the Clock on the south side near the west end, here being 2 Figures of Savages or wild Men, well carved in Wood, and painted natural Colour, appearing as big as the life, standing erect, each with a knotty Club in his Hand, whereby they alternate'y strike the Quarters, not only with their Arms, but even their Heads moving at every blow. These are placed under an arch of the Clock House, which is of the Ionick order, and visible to such as pass on the south side of the Street; whence they are more admired by many of the Populace on Sundays, than the most elegant Preacher from the Pulpit within. They were set up in the year 1671."

Can any of your numerous antiquarian readers inform me when and for what reason this Fleet Street incident was discontinued, and was it the suggestor of the present Cheapside show?—Yours, &c., OMEGA.

New Malden: October 23, 1916.

## BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### BEDFORDSHIRE.

*Pavenham*.—Loose boxes, &c., for Mr. J. Fairbank.  
*Riseley*.—Stables and pig pens, for Mr. L. Johnson.  
*Willington*.—"Mill" Farm: additions for Mr. J. Burr.

##### BUCKINGHAMSHIRE.

*Aylesbury*.—Stores, &c., Southern Road, for Mr. J. Putman.

##### DEVON.

*Devonport*.—No. 9 St. Aubyn Street: alterations for the Liberal Club.  
Two houses, Forest Avenue, for Mr. A. Collicott.

##### DURHAM.

*Blaydon-on-Tyne*.—Club house. Messrs. White & Stephenson, architects, 55 Pilgrim Street, Newcastle-on-Tyne.  
*South Shields*.—Nos. 200-2, Maxwell Street: addition for Mr. E. Pledger.

##### LANCASHIRE.

*Hawthorn*.—"Crown" Mills: extension for Messrs. Worrall, Waite & Co., Ltd.  
*Newby Bridge*.—House: additions for Miss Bannister.  
*Scarisbrick*.—Two houses, Drummersdale Lane, for Mr. J. Gregg.

##### LINCOLNSHIRE.

*Skegness*.—School, Seacroft Esplanade: additions for Mr. H. E. Sparrow.

##### MIDDLESEX.

*Hornsey*.—Three houses, Elmfield Avenue. Messrs. F. Chambers & Son, A.R.I.B.A., architects, 11A College Hill, London, E.C.  
Nos. 25, 61-65, and 69 Crouch Hall Road: alterations. Mr. J. Farrer, architect, 2 Coleman Street, London, E.C.

No. 107 Stapleton Hall Road: alterations. Mr. J. W. Stevens, A.R.I.B.A., architect, 181 Queen Victoria Street, London.  
Nos. 206-8 Stapleton Hall Road: alterations. Messrs. Hodson & Whitehead, architects, 472 West Green Road, London.

##### NORTHUMBERLAND.

*Newburn*.—Club house, Wheatfield Road: additions for the Westerhope Social Club.  
*Willington Quay*.—Offices: extensions for the Northumberland Shipbuilding Company.

##### NOTTINGHAMSHIRE.

*Firbeck*.—Proposed colliery village of 1,500 houses, for Blyth and Cuckney R.D.C.  
*Retford*.—The "Hop Pole" Inn: additions and alterations for Messrs. Mappin & Co., Ltd.

##### STAFFORDSHIRE.

*Wolverhampton*.—Factory for Messrs. Courtaulds (of Coventry).

##### SURREY.

*Richmond-on-Thames*.—No. 58 Queen's Road: alterations. Mr. E. J. Partridge, architect, Bank Chambers.

##### SUSSEX.

*Hove*.—No. 81 The Drive and No. 41 Clarendon Villas: alterations. Mr. A. H. Lainson, architect, 59 Ship Street, Brighton.

##### WARWICKSHIRE.

*Rugby*.—House, George Street, for Mrs. C. Gilbert.

##### YORKSHIRE.

*Mirfield*.—Warehouse, for Mr. L. Balmforth.  
*Wakefield*.—House, Manygates Park, Barnsley Road: conversion into three houses. Mr. W. Wrigley, A.R.I.B.A., architect, 2 King Street.

#### SCOTLAND.

*Dundee*.—House, Foundry Lane: alterations for Mr. A. Rattray.

House, &c., Fairfield Road, West Ferry Green, for Mr. D. W. Webster.

*Edinburgh*.—Nos. 32-36 Grassmarket: alterations for the East of Scotland Public-house Trust, Ltd.

*Glasgow*.—Electricity Generating Station, Dalmarnock. Mr. W. W. Lackie, Corporation electricity engineer.

Works, McLellan Street, Kinning Park: additions and alterations for Messrs. Butters Bros. & Co.

Works, 135 Shuna Street: additions for Messrs. George McLellan & Co.

#### IRELAND.

*Belfast*.—Premises at the corner of Gamble Street and Donegall Quay: alterations and improvements for Messrs. Hollywood & Donnelly, Ltd.

## PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 13,547. Sept. 23, 1915.—J. T. Pickering and H. S. Garrard, 16 Howick Place, Victoria Street, Westminster, S.W. Hoisting appliances.

13,711. Sept. 27, 1915.—Robert Wilson, 116 Collins Street, Hobart, Tasmania. Building of concrete structures.

14,685. Oct. 18, 1915.—Deightons Patent Flue and Tube Co., Ltd., and W. J. Lewin, Vulcan Works, Pepper Road, Leeds. Motor wagons of the kind employed for removing ashpit and other refuse.

14,795. Oct. 19, 1915.—Major Aubrey Wallis, M.F.H., E. Squadron, Avonmouth Remount Depot, Shirehampton, Glos. Incinerators or refuse destructors.

101,503 (1,969, Feb. 10, 1916).—The Camelon Iron Co., Ltd., Camelon Ironworks, Falkirk, Stirling, N.B. Domestic fireplaces.

14,733. Oct. 19, 1915.—Ernest Long, 28 Deansgate, Manchester. Purification of sewage by the utilisation of activated sewage.

13,216. Sept. 16, 1915.—T. L. Southgate, D.C.L., 19 Manor Park, Lee, S.E. Electrical methods for sounding of church and other bells.

101,386 (5,049, April 6, 1916).—Filippo Danesi, 32 Via del Boschetto, Rome. Means and apparatus for keeping a constant discharge of a liquid or the like.

15,864. Nov. 10, 1915.—H. C. Downie, 6 Sugarhouse Lane, Greenock. Taps or valves.

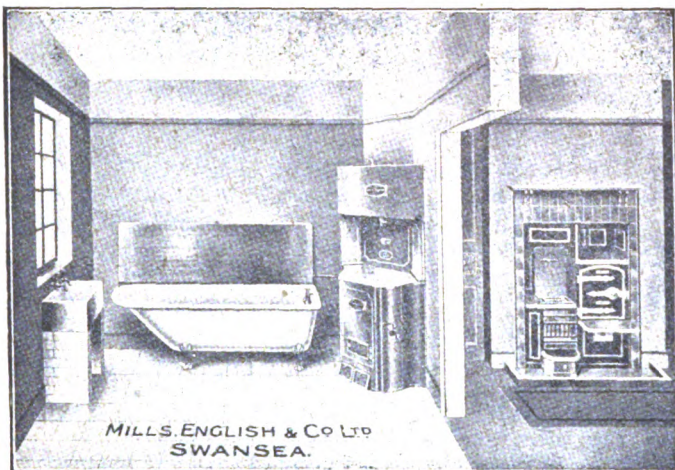
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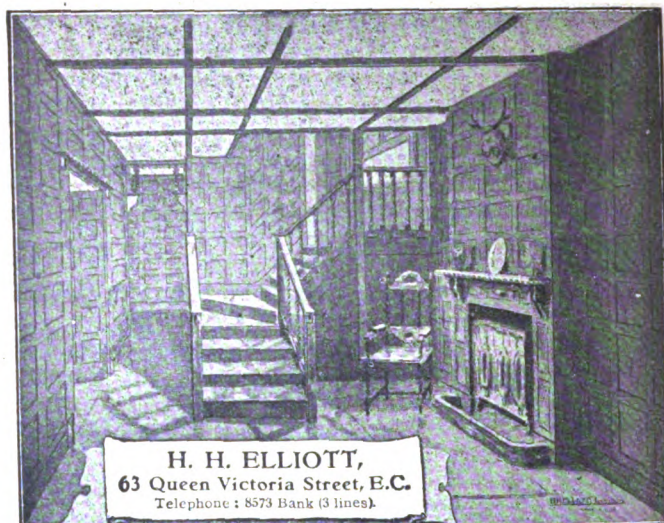
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# THE ARCHITECT

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## FORTHCOMING EVENTS.

*Monday, November 6.*

Royal Institute of British Architects: Opening Address of the Session by the President, Mr. Ernest Newton, A.R.A., at 3.30 p.m.

*Tuesday, November 7.*

Arts and Crafts Exhibition Society: Discussion on "Household Gods" at the Royal Academy, Miss Lena Ashwell in the chair, at 3.30 p.m.

University College, Gower Street, W.C.: The first of six public lectures on "The Town Planning of Greater London after the War," by Professor S. D. Adshead, M.A., F.R.I.B.A., at 5.30 p.m.

Institution of Civil Engineers: Address by Sir Maurice Fitzmaurice, C.M.G., the President, and presentation of medals awarded by the Council, at 5.30 p.m.

*Wednesday, November 8.*

Manchester Society of Architects: Paper entitled "The French Achievement in Architecture," by Mr. W. S. Purchon, M.A., A.R.I.B.A., at 6.30 p.m.

*Thursday, November 9.*

L.C.C. Central School of Arts and Crafts, Southampton Row, W.C.: University Extension Lecture VI. on "English Architecture: "Medieval Piers, Mouldings, Towers, Spires, Timber Roofs," by Mr. Banister Fletcher, F.R.I.B.A., at 6 p.m.

Institution of Sanitary Engineers: Paper entitled "The War for Health," by the Hon. Sir John McCall, M.D., Agent-General for Tasmania, at Caxton Hall, S.W., at 5.30 p.m.

## CHARING CROSS BRIDGE.

IN a series of articles in "The Observer," Mr. John Burns, Sir Aston Webb and Mr. Reginald Blomfield have discussed very fully the past, the present and the future of Charing Cross, its railway station and bridge, from the point of view of that very large section of the public who would fain see removed "that ugly, red-oxide Behemoth which sprawls from north to south" across the fairest views of the London river. By the way the orientation of the railway bridge as given in Mr. Burns' epigram is not quite correct, the true alignment being more nearly W.N.W. to E.S.E.

We need not greatly concern ourselves with the history of the present bridge, which was constructed in 1859, from the designs of Sir John Hawkshaw, on the site of the old Hungerford Suspension road-bridge, further than to note that an iron railway bridge, nearly sixty years old, over a river and in constant use by heavy traffic, may be expected, *prima facie*, to have so far deteriorated in stability and soundness as to have suffered a diminution of its original margin of safety, presaging an approaching catastrophe. The station roof, as we all remember, has already collapsed.

It is indeed the fact that the bridge is, in the words of the railway company's engineers, "strained" to an extent that prevents its full use in safety, which has brought the question to the fore at the present inconvenient moment. The bridge is no longer a sound iron bridge, but a "red-oxide" bridge, which carries several lines of rails, of which only half can safely be used at the same time, and then only with the proviso that no two trains shall travel together in the same direction on immediately adjacent lines.

It is obvious that the only common-sense treatment for the present bridge is to scrap it. The railway company have contemplated two alternatives. First, to widen the bridge; second, to strengthen by additional sub-structure the existing decrepit concern. The company have already obtained parliamentary powers for the former course, but have not exercised them. We are justified in assuming that they dare not, for the existing structure must either be left derelict or become increasingly unsafe in use. Parliament has refused its sanction to the second course, having evidently taken the common-sense view that it is only throwing good money after bad and storing up future trouble to bolster up a decadent monstrosity.

The next point of importance as regards the present bridge is that the station at Charing Cross is clearly too small for its purpose and its approach totally inadequate for carriages, cabs and taxis on the arrival of

the Continental trains. One of the arguments used by the representatives of the railway company in favour of preserving and strengthening the present bridge is that they anticipate a very great extension of their Continental traffic after the war. If this anticipation is realised the inadequacy of the present station will be intensified to an unbearable degree. Sir William Lever, in his evidence before the Select Committee of the House of Lords said, "I am perfectly certain that it is impossible to have an adequate station for Continental traffic at Charing Cross," the total area of which is said to be some four acres, as compared with about thirteen acres at the new Victoria station. As with so many other of our London terminal stations, Charing Cross has seen its traffic outgrow the capabilities of its original site.

The third practical and utilitarian reason for the abolition of the present railway bridge is that a new vehicular road-bridge is urgently required across the Thames between Waterloo and Westminster, the distance between which is greater than that between any other two London bridges. The distance between London Bridge and Southwark is about 480 yards, between Southwark and Blackfriars 770 yards, between Blackfriars and Waterloo 960 yards, between Waterloo and Westminster 1,200 yards. The enormous increase in traffic over the two latter bridges is shown by the Board of Trade returns, and, owing to their congested state, Waterloo Bridge will certainly have to be widened unless relief is given by the formation of a new road-bridge, from Charing Cross to the Surrey side. Not only is Waterloo Bridge overtaxed, but a considerable proportion of the congestion in the Strand is caused by traffic to the Surrey side making for that bridge.

There are thus three sufficiently weighty and purely utilitarian reasons for the abolition of the present Charing Cross railway bridge; its decrepitude, the inadequacy of the station and the necessity of a new road-bridge.

The only argument, as far as we can understand, that the railway company puts forward why the bridge and station should be maintained in the public interest is, in the words of Mr. H. Cosmo O. Bonsor, the chairman of the South-Eastern and Chatham Railway, "the daily convenience of the travelling public who use this bridge to the extent of 18,000,000 of travellers annually, a great proportion of whom consist of the working classes carried at cheap fares."

Now neither Mr. Bonsor nor any one else can assert that more than an infinitesimally small minority of the 18,000,000 complete their journey at Charing Cross station, which is but the starting point of further travel, pedestrian or vehicular. As far as vehicular travellers

are concerned, it would not merely be no disadvantage to them to commence their secondary journey on the Surrey side of the river, but the facilities that would be available from the greater roominess there possible would save an appreciable amount of time, and the cost of travelling by motor bus or tube would certainly be no more and would probably be less than by S.E. and C.R.

Mr. Bonsor's "great proportion" consisting of the working classes, as every unprejudiced observer of Charing Cross will recognise, can only be arrived at by a violent extension of the ordinary meaning of the term "working-classes." Charing Cross is pre-eminently not a "working-class" station, if we do not include in that class all who work in any capacity.

Let us, however, consider the position of the workman's ticket holder whom the S.E. and C.R. now carries across the Thames to Charing Cross. The railway company even "at cheap fares" is not sufficiently altruistic to carry him for nothing, and if he is landed on the Surrey side, a motor-bus would be delighted to take him to the Strand for a half-penny. Does the S.E. and C.R. do it for less? If the half-penny is a consideration to him, he would certainly be glad of the opportunity to save it by walking across the river, whereas now he is practically obliged to pay the Company for carrying him. According to our time table there are only five workmen's trains in the day that give him the opportunity of alighting at Waterloo Junction and walking across the river, and two of these are due at Charing Cross before 6.0 A.M.

The ordinary fare between Charing Cross and Waterloo Junction is one penny, so that the worker who does not travel by workmen's train would save money by riding across the new Charing Cross road-bridge in a motor bus for a half-penny. Thus it seems to us that Mr. Bonsor's solicitude and sentimental appeal for the "working classes" is pure humbug.

Naturally, in the columns of "The Observer," Mr. Burns, Sir Aston Webb and Mr. Reginald Blomfield devote considerable space to the aesthetic claims for a much needed civic improvement at Charing Cross, but in the columns of "The Architect" it is quite unnecessary for us to urge this aspect of the question.

Nor need we, at this juncture, consider in detail the plan that these protagonists suggest, showing the possibility of constructing a new road-bridge on an axial line drawn from the church of St. Martin-in-the-Fields to a round-point at the crossing of Waterloo Road with Stamford Street and York Road, without interfering with the present railway bridge and providing a site of some fifteen acres for a new station and hotel on the Surrey side.

Mr. Cosmo Bonsor announces that it is the intention of the South-Eastern and Chatham Railway Company to reintroduce in the present session of Parliament their Bill providing for the strengthening of the present decrepit "red-oxide Behemoth" which was rejected by the House of Commons. It behoves everyone, therefore, who values the convenience of the public or the aesthetics of London to use all their influence to ensure its repeated defeat.

#### NOTES AND COMMENTS.

THE collection of etchings and drawings by Charles Meryon, to which we referred recently as having been brought together by a Scottish amateur at Glasgow, is the object of desire not only by the art lovers of Glasgow, but by Mr. Campbell Dodgson, Keeper of the Print Department of the British Museum, who, whilst entreating the wealthy citizens of Glasgow to acquire the collection for the Corporation Art Gallery at Kelvingrove, urges the claims of the British Museum, suggesting that its at present "second best" assemblage of Meryons be made "unrivalled and supreme" by the addition of the rarities from the collection under notice. "Even without those few trial proofs and early states that are most needed in London and are never likely to be obtained if they are

lost now, the collection would put Glasgow to-morrow in the position that London held yesterday, and that is not one to be despised. Will not some patriot or group of patriots come forward and keep the Meryon collection safe at home, by Thames or Clyde, before it has embarked, as we must fear it otherwise may do, on a voyage across the Atlantic, from which it is never likely to return?"

Undoubtedly the Channel Tunnel would be very useful to this country and its Allies in the present war if it were in existence; but, in view of the fact that as recently as July 1914 a majority of the Committee of Imperial Defence reported against the Tunnel on strategic grounds, Mr. Asquith could scarcely go further, in reply to the influential deputation representing the Channel Tunnel Committee of the House of Commons, than say: "I am of opinion that this matter in all its aspects, particularly in the light of the new experience which we have gained from the war, should be reviewed by the War Committee or the Committee of Imperial Defence, whichever may turn out to be the fitter instrument for the purpose, and without prepossession or prejudice, and that they should be invited or required to express their judgment upon it. You cannot expect me to say more than that. I can assure you that, subject to the paramount obligations that weigh upon us every day in making provision for the successful prosecution of the war, I will see that time is found and opportunity given for a full review of the question in the light of the new experience we have acquired."

We are glad to note that Lord Dunedin has taken up the cudgels on behalf of Princes Street, Edinburgh, against the proposition to instal overhead wires for tramways "tastefully supported." The experts who reported, as we have noted, in favour of overhead wires do so on the score of economy; but, apart from the amenities of Princes Street, which are worth preserving at the cost not of greater expense but of less profit, the safety of the public is a strong argument in favour of the conduit system. Overhead wires do not often cause catastrophes, but they are always liable to do so; and do, occasionally, result in death or serious injury to the public.

In the Journal of the National Association of Master Heating and Domestic Engineers, a quotation is made from an allegation that, in the United States, there has arisen a practice of some architects' offices of charging for plans and specifications used in estimating. The Journal of the National Association goes on to say that the allegation is "not without application to the condition of affairs in our own country." This application is, to our mind, unwarrantable. Deposits are often asked, in invitations for open tendering, for copies of bills of quantities or other expensively prepared information, but these deposits are returned to those who send in bona-fide tenders. Charges are made for bills of quantities, &c., to be paid by the successful contractor, but these are included in the estimates and in the amount of contract, and therefore repaid by the employers. As far as our experience goes, and it is tolerably extensive, the costs of any services rendered by architects in this country do not ultimately come out of the pocket of the contractor, still less, as in the U.S.A. if the allegation is correct, from the unsuccessful tenderers.

G. P. Dymond recently lectured to the Plymouth Institution on "The Exeter Book and its Contents," which, by the courtesy of Canon Pryke and Rev. E. T. Foweraker, sub-librarian at Exeter Cathedral, he had recently been permitted to examine. The Exeter Book, he explained, was the oldest collection of early English extant, and was given to Exeter Cathedral by Leofric, first Bishop of Exeter, when he died in 1071. The book was naturally very carefully preserved at Exeter. There were indications, however, that it had at times narrowly escaped destruction, some of the leaves being considerably mutilated. The remarkable thing was that in the body

of the book the ink remained as fresh as when it was written. The handwriting was in old English characters, and was probably the work of some painstaking monk. The handwriting in the companion book at Vercelli, which was discovered in North Italy in 1832, was somewhat later, eleventh century compared with eighth century. It was probably left in Italy by an English pilgrim on his way to Rome. The lecturer compared the two books and then examined the poems in the Exeter Book, not all of which, he said, were by Cynewulf, some being much earlier than his day.

Calcium chloride added to the mixing water to an amount of 4 per cent. by weight will increase by large percentages the rapidity with which concrete gains strength. This conclusion has been reached by the United States Bureau of Standards at Washington, in which the effects of various chemicals were studied in an effort to find a good accelerator for hardening concrete. While the time of setting was not materially affected by adding calcium chloride, there was no difficulty experienced in handling the concrete to which it had been added. Standard 1-3 mortar cubes and standard cylinders of 1-2-4 and 1-1½-3 concrete were tested in compression at varying ages up to thirty days. Tests of the 1-3 standard sand mortar show that the rate of hardening is accelerated most by the addition of calcium chloride, which increases the strength at twenty-four hours by from 155 to 230 per cent. and at forty-eight hours by from 173 to 190 per cent. over the strength of mortar containing no calcium chloride. The best percentage of calcium chloride to use for proportions of concrete is from 3 to 4 per cent. of the weight of the mixing water. The increase in strength at forty-eight hours thus obtained varies from 14 to 275 per cent. for the 1-2-4 mix and from 11 to 110 per cent. for the 1-1½-3 mix. In all but one case the concretes mixed with 4 per cent. of calcium chloride show greater strength for both mixes than for plain concrete, these results being consistent, though variable, for all the ages tested, up to thirty days. This acceleration in strength is believed to be due to the more complete hydration of the silicates and aluminates in the setting of the cement. The use of calcium chloride increases the cost of concrete by 2s. to 2s. 6d. per cubic yard. For best results it is important that the concrete be mixed to a quaking, but not fluid, consistency. Calcium chloride should be used with caution for reinforced-concrete construction, as it tends to accelerate any corrosion of the steel which may occur.

The Mitchell Library has just received a gift of a remarkable collection of photographs which form a valuable record of the topography of Glasgow. They are the work of the late Mr. William Graham, and the fact that the collection consists of 2876 photographs indicates its comprehensive character and reflects the industry with which Mr. Graham pursued his self-imposed and pleasurable task. The bulk of the photographs are in negative but the negatives are of excellent quality, and it is to be hoped there will be no undue delay in making prints of them.

The collection has been carefully catalogued, and it is obvious that when the negatives are reduced to print it will form a rich gallery of Glasgow in architecture, character, and episode. The "Mitchell" has ample wall space to accommodate a frame collection which might be arranged in chronological order, and which would prove a valuable auxiliary to those who may visit the library to delve into the printed records of Glasgow. The cost of printing the photographs should be comparatively trifling. Some generous citizen may provide the necessary funds, or the Old Glasgow Club by undertaking the work would honour the memory of a worthy member, and at the same time perform a creditable civic duty which indeed legitimately falls within its functions.

## ILLUSTRATIONS.

### ST. MARY CHURCH, SCULCOATES.

This interior view was included in this year's Royal Academy Exhibition. The church replaces an older one on a different site, which latter had become surrounded by mills, and the neighbouring houses cleared away or condemned. The new building is in the centre of the population. The tablets and other memorials from the older church have been placed in the new building, which consists of nave and choir, with north and south aisles, and a large chapel, and vestries on the left of the nave. A square tower will eventually finish the west end of the nave. The building is of local brick, plastered internally with a sparing use of stone. The contractors were Messrs. Quibell, of Hull. The accommodation at present will be for about 700. Mr. Temple Moore, F.R.I.B.A., was the architect.

### ST. LUKE'S CHURCH, WALSALL.

The accommodation provided by this proposed church will be for rather over 500. The nave has short north and south aisles, with a choir of three bays, flanked by chapels on either side. The internal facing is to be of local limestone. The drawing, which was at the Royal Academy Exhibition, shows the church from the north-west. Mr. Temple Moore, F.R.I.B.A., is the architect.

### DILKE HOUSE, MALET STREET, W.

The photograph illustrates a new building recently erected for the National Amalgamated Union of Shop Assistants, Warehousemen, and Clerks in Malet Street, W., a new street parallel with Gower Street, laid out on the estate of the Duke of Bedford.

In order to meet the rapidly-increasing requirements of the Union the building has been designed so that one or two more storeys can be added. It is perhaps a just criticism of the present elevation that it seems somewhat truncated, and that the main cornice is somewhat heavy; this the architects think will not be the case when the building is completed.

The structure is fire-resisting throughout; it has a flat asphalted roof, and is faced with Portland stone. The walls of the entrance corridor and hall are treated in a new method, with a terrazzo formed of very fine grain with marble and white cement treated architecturally in a simple manner.

The architects were Messrs. Lander, Bedells & Crompton, and the builder, Mr. W. J. Maddison, of Canning Town.

### IMPERIAL HOUSE, TOTHILL STREET, WESTMINSTER.

The illustration shows the front elevation of a building recently erected upon the site of the old "Imperial Theatre," the remaining portion of the site of the Royal Aquarium. It stands at the corner of Tothill Street and Dartmouth Street, and immediately adjoins Caxton House, the lines of which building have been carried through by the architects, Messrs. Metcalf & Greig, the main front having been classically treated in Bath stone (fluated).

A feature has been made of the main entrance, with its superimposed recumbent allegorical figures, executed by Mr. L. F. Roslyn, R.B.S. The entrance gates, balconies, iron railings, lift enclosures, and lift gates were supplied by Messrs. Strode & Co., Ltd. The spacious entrance hall is finished throughout by Messrs. Walker & Co., with statuary marble, lined with black Belgian marble, surmounted with a dove capping, the pavement being marble. The stained glass and copper glazing by the British Luxfer Co. Heating, Messrs. Strode & Co., Ltd. Sanitary goods, Messrs. Stitson White & Co. Lifts, Messrs. Waygood-Otis, Ltd. Door and window fittings, Messrs. Tonks, Ltd. Electric lighting, Mr. G.



J. Thornton Alder. Constructional steel, Messrs. Redpath, Brown & Co.

The great difficulties of the foundations were successfully overcome, and the very sound commercial office building was erected by Messrs. W. H. Lorden & Son, Ltd., which, before completion, was acquired by the Contracts Department of the War Office, necessitating exceptional celerity in the finishings owing to exigencies connected with the war.

### AUSTRALIAN FEDERAL PARLIAMENT HOUSE COMPETITION.

THE President of the Royal Institute of British Architects has received a communication, dated October 27, from the Office of the High Commissioner for Australia in London, intimating that a cablegram has now been received from the Department of Home Affairs, Melbourne, to the effect that the date up to which designs for the above competition may be received has been extended from January 31 to April 30, 1917.

Those interested in this competition are advised to read the correspondence which has passed between the Institute, Sir John Burnet, and the promoters of the competition in our issue of October 27 last.

### TOWN TIDYING.

THE second of the weekly discussions arranged by the Arts and Crafts Society in connection with their exhibition at the Royal Academy was held last Tuesday. The subject had the somewhat elastic title of "Tidy Towns," and the speakers were able to read their own interpretation into it. Most of their thoughts circled round the subject of Town Planning rather than the best way of introducing greater order and cleanliness into our streets. Indeed, the audience had to wait until the closing sentence of the closing speech for the one really practical suggestion—viz. that our existing pestilential system of dust carts should be replaced by the German method of sealed receptacles, which when full are exchanged for empty ones, the full ones being taken away. Professor Lethaby, whose principal remarks we give below, kept closer to the points than the others and was as individual as ever, especially in his impromptu: his dictum that "Beauty is the smile of Health" being typical of the almost startling common-sense which he offered the delighted gathering. Professor Adshead said the only tidy towns he had ever seen were in Germany, and they were not only extremely tidy, but extremely efficient and also extremely ugly—a patriotic opinion which failed to win universal acceptance. As an instance of how not to tidy towns, Professor Adshead described an otherwise perfect village in Kent, whose beauty is now ruined by the so-called village green, for it has been enclosed in railings and planted with funereal shrubs at the expense of the proud squire and to the design of the borough surveyor. Similarly, our tiny fishing villages are being "laid out" in hideous fashion. The inevitably artificial character of our towns should find its contrast in the natural disposition of the country. Mr. A. J. Penty attributed the ugliness of our suburbs to the invention of the semi-detached villa and the legal restrictions of building line.

By Professor W. R. LETHABY.

I wonder whether any of us have ever been troubled by the question as to whether art was a serious vocation for a serious life. We have perhaps got into the way of looking on art as a rather remote ornament to life—concert-room music, exhibition-room paintings, and perhaps some special Arts and Crafts. Properly, however, art is all worthy productive work; and, looked at in this way, it seems to me that art is about the most serious thing there can be: certainly it is a very serious thing for us at this time, for our towns have been long neglected.

One of the most seeing things ever said, to my mind, was the remark of Victor Hugo that books would kill

art. We understand and believe what we are told in print, but we see very little directly with our eyes. That is, I suppose, why we employ curious people called art critics, who profess to do the looking for us and tell us about it. The blind reporting to the one-eyed. I wonder whether it seems an extreme thing to say that we have partly lost the use of our eyes; if, however, it were not so, I cannot think that we could endure the general disorder in our towns with the advertisement-plastered stations and paper-littered streets: the general dreariness, dullness, and nothing-to-be-doneness except to get away in a fast motor-car.

Much study and research have been devoted to the great question of town improvement from the point of view of planning of late years; but it is not of these technical or architechnical matters I want to speak. I want to speak of what should be the concern of ordinary people—all of us—with the common problem of life in towns.

By thinking of art as a special matter dealt with by special people called architects and painters and musicians, we have gone far to banish beauty from our towns and our lives. What I mean by art, then, is not the affair of a few but of everybody. It is order, tidiness, the right way of making things and the right way of doing things, especially the public things of our towns and cities. It is a question of pleasant railway stations, of street cleaning, of controlling advertisements, of making our houses fit for sane people to live in, and of cooking meals fit for healthy people to eat. Moreover, it is a question of keeping our heads up in civilisation. We have not been properly led about these things; we have not been properly taught. If we were alone in the world it might not so much matter; but we are not alone, and it is a tremendous question this of keeping up fine quality in our work and in our towns.

The need for public art not as superabundance of luxury, but as an absolutely necessary part of the ordinary life of people in communities, has really become for us a very pressing question, and I want to impress it on your minds by repetition. I would have it taught in schools. I would have it become the chief question at elections, so that even members of Parliament would have to show some interest in the beauty of the towns they are supposed to represent; and now it strikes me they do represent very perfectly. I would have all art societies join in some common bond for common work for life's sake outside the professional grind and their trades union points of view. Directly I speak of art in the town it will be natural for you to think of a picture gallery or a special statue or some "art lamppost," or other over-ornamented object; but I must again insist that is not what I mean. I mean the making of our towns fair and fit to live in from end to end, the whitewashing of back courts, the laying down of turf, the reducing of the advertisement mania, the smartening of the railway station, the seeing to it that there shall be some place in every town where decent food can be got comparable to what one gets abroad, the provision of some space of clean country where one may take a dog for a walk without shame. We need to make it an enthusiasm, a game, a movement, a tide of tidying up. Think of any country towns you know in detail; begin with the railway station, or rather two miles before the station, where the miserable advertisements of Mr. X, the ready-made clothes man, and of Messrs. Y, the furnishers on the hire system, begin. Then look at the slatternly shanty called the station and the mean station road. Towns are not necessarily like that. Towns should be made to house a proud and intelligent race of people, and we have to see to it that they are thought of and dealt with from that point of view. We must aim at having the best towns in the world, each with some decent unspoilt country around it, and each with sufficient internal means of civilisation from music to pots and pans. We must be given more to be proud of: do not our leaders know that pride is strength? I dare not let myself describe our towns as they are; but I am anxious to recall them to

your own minds; and even when you leave here may I beg of you to look at Piccadilly, which is about the most famous street in England, and then at the next tube station you come to? Well, they are not good enough! For the earlier half of my life I was satisfied with being told that ours was the richest country in the world, until I woke up to know that what I meant by riches was learning and beauty and music and coffee and omelettes; perhaps in the coming days of poverty we may get more of these.

As an example of what I mean by art where order, conviction, beauty and efficiency are all one, may I instance the Navy? We must not be content until our railways are as ship-shape as a squadron. What other arts have we that hold the same beauty of efficiency carried forward in an unconsciously developing tradition? Just two or three occur to me. Simple, well-off house-keeping in the country, with tea in the garden. Boy-scouting, and tennis in flannels. These four seem to me our best forms of modern civilisation, and must serve as examples of the sort of spirit in which town improvement must be undertaken. Everybody must be interested, and it must be half drill and half game. I am here to beg you all to play this best of games—town-tidying.

Even if art enters into all things made and done I should not worry you about it if it were only a matter of shapes and colours and skill; but it is much more than all these. Art is the right way of doing necessary things, order, mastery, pride. The civic arts are the arts of civilisation. Beauty is a necessary function of Health, and it is one of these few great things which sustain the spirit of communities. The civic arts mean more pride, life, and strength. We have heaps of teachers, politicians, organisers, and economists, but none that I hear of seems to understand that no Nation can last without Beauty.

By Mr. HENRY VIVIAN, J.P.

I have been asked to say a few words on the problem of site planning, not as an expert which I make no pretence to be, but because Co-partnership Tenants, Ltd., of which I am chairman, has experimented on this matter on its estates in various parts of the country.

To formulate rules of a scientific character concerning site planning to secure tidiness is very difficult indeed, because the constant factors are extremely few and the changing ones many. In residential site planning the uncertain and ever-changing qualities, tastes, passions, prejudices, and ambitions of human beings must be borne in mind. Men and women can in regard to their homes be shepherded into adopting new methods only to a limited degree. Site planners, therefore, should be something more than artists if they are to be successful. They must envisage the kind of people who will probably for from 50 to 100 years own and reside in the property to be built on the site, anticipate their weaknesses and failings, and consider carefully whether the provisions which the site plan will crystallise are likely to wear or break down. My time permits me to touch upon one or two points only. A degree of permanence in some matters must be assumed. For example, that a residential site will remain a residential site; that within reasonable limits the same kind of people will occupy the residences, and so on. None of these things are certain, of course, but unless we assume them site planning becomes mere guesswork or a gamble.

It is important to have regard also to the probable type of owner. Certain provisions in the planning which may be quite sound if the ownership is to be corporate and continuous may be quite unwise if the houses are to be owned by individuals and probably sold from time to time. Even where the control over the land is corporate and continuous through the leasehold system, it is extremely difficult to enforce a high standard of conditions on a certain class of resident. Up to a certain point and on certain matters, contracts or agreements and regulations can be treated with contempt; and sym-

pathy nearly always in these matters is not with the authority responsible or owner.

*Limitation of houses to the acre and size of gardens.*—This question requires very careful thought. In the various town-planning schemes there is considerable elasticity. At Quinton provision is made for a limit of 12 to the gross acre and 20 net; at East Birmingham, 12, 15, and 18 in different areas; at Sheffield, 12 to 24. At Sutton Coldfield there are five standards varying from 4 to 25. Our experience in certain districts is that it is not wise to cut the number per acre down too much for the smallest type of house. The people do not want the large gardens and will not cultivate them. In other cases large gardens are appreciated very much. On one estate some of the gardens are derelict, and the others for the most part indifferently cultivated. The site planner should not on this matter be carried away by abstract ideas, but have careful regard to the characteristics of the probable residents. Even where the number per acre is kept low, it is in some cases advisable to secure elasticity by limiting the private garden space per house and retaining a piece for letting to those desiring additional gardens.

*Roads and drainage.*—A skilful site planner can, where liberty exists to include narrow drives and paths, save by a wise arrangement of the frontages so as to secure the minimum of expenditure on wide traffic roads and on length of drainage. There is great variation in the degree of success achieved on this point by different planners on a large site. In one case we saved £90 per acre on a considerable area by scrapping the plans which had been approved by the local authority and giving more thought to the question.

*Small open spaces and playing sites.*—These require very careful consideration before being included in a scheme. They are most difficult under certain circumstances to supervise and may be an important item of cost on smaller rented houses. Even where we have corporate control over these it is difficult to supervise.

*Residential roads and noisy traffic.*—On the whole the system of planning so as to secure that as far as possible the residences should front on non-through traffic roads has been very much appreciated, and is on our estates a success. I can conceive a class of residents, however, which would not prove satisfactory under such conditions.

*Low-rented houses on flat land.*—In the case of an estate on which it is intended to provide houses of a variety of types, it is important to allocate the flat land to the lower-rented houses. In some cases the low-rented houses with us have been rendered unremunerative because of the cost of underbuilding sustaining walls to banks, &c. These items become quite serious ones on houses only bringing in a few shillings a week.

*Generally.*—I think it is extremely difficult to lay down many fixed rules. A short time ago I was discussing with a friend the failure on some more or less trivial matters of everyday occurrence of his brother who had passed his examinations at school and college with credit and occupied a good position in the educational world. "Yes," he observed, "Jim is able to pass almost any examination except that on common sense."

I would urge in the matter of residential site planning that we want specialists in the sense of common things as well as in art.

The average resident is not an altruist. He is for the most part engaged in earning a living and seeking some comfort for himself and family. Even the altruist wants to practise his principles in his own way, which is not always that desired by his fellows, and often the advocates in housing reform of ideals which can only be achieved by stringent regulations, are the most difficult to regulate.

Many of the things we desire done can only be brought into being on a large scale by a general change in tastes and standards of demand.

The site planner is not master of the fate of a site. He can only co-operate with other agencies and should

carefully discriminate between those things which he can only venture to count upon in selected and exceptional cases, and those where he is up against human nature more or less in the rough. Some day we may all get "selected," but the time is not yet, and when it comes the site planner will have many of his problems made easier of solution.

### SHEFFIELD SOCIETY OF ARCHITECTS.

THE annual general meeting of the Sheffield, South Yorkshire and District Society of Architects and Surveyors was held at the office of the President, Church Street, Sheffield, on the 27th ult. There was only a moderate attendance, Mr. A. F. Watson, F.R.I.B.A., the President, was in the chair. In the absence of Mr. R. W. Fowler, F.S.I., the treasurer, the annual statement of accounts, showing a very satisfactory financial position, was presented by the Honorary Secretary, Mr. J. R. Wigfull, A.R.I.B.A.

In the annual report regret was expressed at the death of Mr. Charles Hadfield, a former president and secretary, Mr. Charles Green, "a lay member and one of the cleverest craftsmen Sheffield has produced," and Mr. B. Rogers. The Architects' War Committee appointed by the Royal Institute had been in frequent correspondence with the Council. Endeavours had been made to secure work for the local members of the profession who were in need of it, and to obtain commissions for the younger men who desired to join the Army. This had been very successful in many cases, though some had been rejected on medical grounds. The "conscientious objector" had been exceedingly rare in the profession. Many local members of the profession had taken part in the "great push," a few had been killed, though, fortunately, the number was small compared with the large number engaged. Others had been wounded, some in such a manner as to render them of little further service to the Army, and to handicap them in their civilian work.

The Council had considered possible directions in which the requirements of the building by-laws might be modified at the present time in order to cheapen the erection of working men's dwelling-houses. The difficulty was that dwelling-houses erected under the proposed conditions would be of a permanent character. The Council understood that the City Council approved of certain modifications for the term of the war, and it was suggested that these modifications should remain in force for a certain length of time after the proclamation of peace.

The question of narrowing the footpaths of secondary streets had also been considered, but the proposals seemed to apply more to towns where there were front and back approaches rather than to a place like Sheffield, where such a system did not obtain. The Council had offered its co-operation in any work which might be done with regard to the utilisation of vacant building land for garden purposes, but as nothing had been heard it was to be supposed that the difficulties had proved too strong.

The officers and council were all re-elected.

### THE PLAN AND FURNISHING OF CHURCHES.\*

By REV. JAMES COOPER, D.D., D.C.L., Hon. Litt.D.,  
Regius Professor of Ecclesiastical History of Glasgow University.

It is expected of a medical man in charge of a hospital that he make himself acquainted with whatever concerns the proper equipment of the edifice for its special purpose. The man who has the cure of souls ought to be no less clear in his apprehension of the ends for which

a church is built; of the nature and place of the different parts and ordinances of God's appointed worship; and of the things, or arrangements, which may help—or hinder—himself and the people in the intelligent, reverent, and edifying fulfilment of the duties to God and to each other which they assemble to discharge.

Of course it is the mind and the heart that matter; but both mind and heart can be helped—or hindered—by the material surroundings. Ours is the religion of the Incarnation. We are not disembodied spirits; we are soul and body, and we are to glorify God in our body.

The war will not last for ever. And after the war? Not long ago I was advised at a church restoration meeting by a very able and munificent supporter of the scheme: "Do just now what you aim at getting done. You will not get money for such purposes when the war is over. There will be much less money in the country, and what there is will be wanted for other things." Will it? I reminded my friend that this was not what happened in Scotland, or in England either, after two great and destructive wars which had been waged, as this war is being waged on our part and our Allies' part, for the sacred cause of liberty and Christian principle. Our own war of independence against the ambition and the tyranny of Edward I. left the Scotland of the early fourteenth century far more terribly impoverished than even this war will leave us. But the Scotland of that day did not forget to Whom she owed the great victory at Bannockburn. *Non nobis, Domine.*

"Not unto us, Lord, not to us,  
But do Thou glory take!"

In the East, St. Andrew's Cathedral was completed, and dedicated to Almighty God as a national thank-offering for the great deliverance, in the presence of King Robert Bruce, seven bishops, fifteen abbots, and almost all the earls and lords whom the wreck of war and revolution had left in Scotland. Here in the West the work on the nave of our cathedral, suspended for some eighty years, was resumed and finished.

Again, long after the Reformation, when Waterloo had caged for ever an eagle grander than the Kaiser, Parliamentary grants for church-building made to both the National Churches attested the recognition by our rulers of that day of the fact that Christian faith, as well as animal courage and the generalship of Wellington, had contributed to the successful termination of a series of wars which lasted over twenty years.

There will be something very far wrong with the religion of our countrymen if, after this war, there is nothing of the same kind as an immediate and spontaneous expression of devout and grateful feeling. The war will end, we trust, in decisive victory; and victory should end in thanksgiving and in thankofferings for the glory of God (and not simply for utility to ourselves); for the glory of God, I say, "Who is the only Giver of all victory," and for the increase of that worship which is due unto His Name, as well as in memory of those who have laid down their lives in a cause so holy. Whatever other forms, therefore, our thankofferings should take, there should certainly be the building of many new churches, the reparation of many old ones, the amplifying and adorning of many that at present are too small or too mean for their sacred function.

In Glasgow I hope that we may follow the example of our predecessors after Bannockburn. I could conceive no finer thankoffering, no more suitable memorial of our gallant fellow-citizens who have fallen in this war, than the giving back to our cathedral—the glorious mother-church of Strathclyde—of those two western towers of which the ignorance of the last century deprived its western front.

For the University Chapel which, so soon as peace returns, will rise to hallow this stately pile, we have got, I believe, sufficient money for the fabric; but it will call for adequate furnishings and glass—appropriate memorials of the many sons of Alma Mater who have enhanced the lustre of her fame, not in the manner which

\* Part of an Address to the Divinity Hall, University of Glasgow, at the opening of Session 1916-17.



their talents seemed to promise but by the sacrifice alike of career and life in their country's cause.

All over Scotland it will be the same; and wherever the thankofferings take this direction we in the Holy Ministry ought to be able to offer some guidance to the donors, so that their money may not be spent in things unsuitable, unbeautiful, and of no power whatever to lift the heart to Heaven.

Then in country districts—though we hope there will be a considerable return of the population to the land—the churches to be built, even as votive or memorial offerings, will naturally be smaller and plainer; while we cannot look (and ought not to look) for any augmentation of the burdens lying on the heritors for the provision of parish churches. The people of these parishes should be encouraged to add something from their own pockets; but even so, the word in such cases will probably continue to be, "As much accommodation as may be, at as little cost." This means, of course, that not much can go for what is commonly called "ornament." We need not regret it. A great deal of so-called "ornament" has been no real ornament at all. It will do us no harm to think less of ornament, and more of line and of proportion, of adequate space not for pews merely but for central passage, and above all for chancel. Of ornament proper one fine feature may be all that we can afford. But one really fine feature—a graceful chancel arch or a really good chancel screen, a delicately designed east window, a richly moulded doorway, a finely proportioned gable, a neat belfry—will impart a wonderful distinction to the plainest structure, if its general lines be right and the masonry be careful.

Coming now to the form of the church. It should in most cases be an oblong, of three squares in length, two for the nave, for the congregation, and one for the chancel—where the great central rite of our religion, and from time to time such other functions as marriage, ordination, burial, may be celebrated with becoming dignity. Other parts—side aisles, transepts, steeple, vestry, cloak-rooms, halls—are accessories desirable often, needful (probably) where the church is for a populous parish, and is the centre of many activities; but the main purpose of the church is the worship of Almighty God in the ordinances of His own appointment, and the fitness of the building for the noble fulfilment of these must never be allowed to be forgotten. Worship must be paramount, and nothing must be permitted to encroach upon its claims and rights. Of worship the clergyman is especially the guardian, as well as the officiant. If he has not a high esteem for it, if he does not appreciate its parts and principles, if he is not zealous for its honour, how should others know, or care, very much about it?

And, first, I am in favour of the old and persistent fashion—more persistent, I believe, in Britain than in any other land—of building our churches, if it be possible, and wherever it is possible, east and west, with the Holy Table at the east end and the congregation looking that way.

Orientation was observed by the very earliest of the preachers of the Cross in these islands. The pagan Irish sang about Saint Patrick:—

"He comes, he comes, with shaven crown,  
From off the storm-tossed sea;  
His garment pierced at the neck,  
With crook-like staff comes he!  
Far in his house (church) at its east end  
His cups and patens lie;  
His people answer to his voice,  
*Amen, Amen, they cry.*"

In the same direction, for the same reason, our Christian dead were till quite recently invariably laid. The symbolism is as fine as it is easy. The east is the quarter of the Rising Sun: it was in the east, in Palestine, that our Lord, the Sun of Righteousness, arose upon our darkened world. It is in the east—so Scripture seems to teach—that He will appear the second time. "His feet in that day shall stand upon the Mount of Olives." There

is something fitting (when we come to worship Him in public) in our united showing by the very disposition of our bodies our adhesion to the blessed hope which we hold in common with those who in their graves are waiting for Him. I think the symbolism worth a great deal. But there is a practical reason also. If the church is set with the chancel to the west the sun at evening service will shine for certain months right into the faces of the people; so also if the church is set facing south; while to face the north is to look out on cold and cheerless skies.

Second, there has been a tendency, I think, of late to forget too much the value of the tower and spire. This also is a very ancient feature of the parish church in Britain, going back in England to Anglo-Saxon times and appearing in Scotland, at Restennet and St. Andrews, in the first churches built at the incoming of southern culture. Its symbolism is no less natural, no less easy, more frequently felt, and, I believe, more needed at the present day than even that of the orientated church. Probably no generation of Christians ever required to be reminded so constantly and so emphatically as our own of the truth that Heaven is our true home. Here we have no continuing city, but we seek one to come. The spire, too, has its practical uses: it shows people where the church stands; its upper storeys make an excellent belfry; and, where it occupies its good old-fashioned position at the west end of the church, its ground floor, opening from the nave, supplies one of the best of all positions for the font.

This, however, must be said: the spire is one of the features which, if the whole design of the new church cannot be carried out at once, may be left with tolerable safety to the liberality of a future day. If there be provision made for it, and if a sufficient foundation is secured from the beginning, people will willingly give for its erection. I could not sacrifice the interior of the church, least of all would I sacrifice the chancel, for the spire; but it is distinctly worth your trying to obtain.

Third, the porch—especially the south porch—is another beautiful feature, of easy symbolism (suggesting some preparation for entering the house of God as well as inviting the stranger to go in), and of practical convenience. Even where I have a western door I would like a south porch also: to protect from draughts those who are already in the church, to be the main door of entrance for the people, and one at least of their means of exit.

Fourth, of the size and internal arrangement and decoration of the chancel I shall have to say more immediately. I remark here that on all grounds of principle the chancel is the noblest portion of the church; that in order to get a good chancel much may be sacrificed; and that, whether or not you are able to obtain a structural chancel—many beautiful old churches in Scotland, that of Foulis Easter, for example, had not one—its super-eminent dignity ought to be marked both externally and internally by its richer decoration. We all admit that "man's chief end is to glorify God." How comes it that, in the church-building and church-furnishing of the Church of Scotland, the cognate truth that the chief end of worship is God's glory was, and is, so frequently, so persistently, forgotten? But it is our duty to reform this; and no better opportunity for doing so is likely to occur to any of us than when we have a church to build. Make a strong point always of the chancel, and of the reason why you want it. Tell the people that it is because the church is for the worship of God through Jesus Christ.

Fifth, it is one of the chief reproaches that still rest, alas! on the Church of Scotland that so many of her parish churches are open for Divine service only once on Sundays, and not once on week-days. We have, I fear it must be said, a "lazy squad" of ministers who have hitherto succeeded in preventing any interposition by the Church Courts to disturb their chartered indolence. But public opinion grows in an opposite

direction, and already one hears complaints that so many of our churches are so seldom used, and are shut from Sunday to Sunday.

A service on week-days is often of the highest spiritual value; but it can hardly in most cases be very largely attended, and "a thin church" (or what looks like that) discourages the congregation even more than it does the minister: he remembers how Our Lord sat up a whole night to preach to one man, and spent a whole day preaching to one woman; the congregation miss the contiguity of fellow-worshippers. There ought, therefore, in connection with every large parish church to be a side chapel—(not a hall: a hall is utterly unsuitable for worship, and where used for that purpose tends only to degrade the worship)—a side chapel for service on week-days. Shaw, the eighteenth-century historian of Moray, tells us that, as late as 1775, the choir of old St. Giles at Elgin was used there "for service on week-days." I suppose the maintenance at Aberdeen of the ancient "weekly exercise" (on Thursdays) has been due in no small measure to the happy preservation of St. Mary's Chapel, "the Lower Church" of the great city church, St. Nicholas. How admirably adapted is the Moray aisle to the daily service in St. Giles, Edinburgh! More recent examples of what I desiderate appear in the side chapels at Govan and the Barony of Glasgow, and St. Oswald's, Edinburgh. There is some convenience in treating the chancel, as in St. Cuthbert's, Edinburgh, as such a chapel.

Sixth, the vestry is not of very old standing in our parish churches. In old times it was quite common for the parish minister to walk down the town in gown and bands. That was done in Elgin till 1828; when the local poet sings of "the little bell" employed—

"To ring the person in  
Of the parson in his gown, Sir,  
Wi' his sermon in his pouch,  
Who is jogging down the town, Sir."

I remember seeing a venerable minister of Deer, in Aberdeenshire, walking in this way down the village street; the picture lingers pleasantly in my recollection when every word of the sermons that I heard from the good old man has faded. The custom, I believe, is still retained at Perth. Better to maintain it or revive it than to add a mean excrescence to the church. If I had my will in the West Church at Aberdeen (the only work in Scotland of Gibbs, the great London architect) I would clear away the stuffy apartment which has been partitioned off between the pillars of that stately fane, and let the minister robe in his halls across the street.

Seventh, I confess I do not like halls. I think a great many of them are a needless sinking of money; that many more do positive mischief, accustoming the children, for whom they were built, to think they are not wanted in the parish church. But there are cases when they are both needed and well used; and since we are to have them let them be, if possible, beside the church, so that those who gather in them may be taken into it for service. They should be as convenient, of course, as possible for the work to be done in them; but they should be severely simple, and perhaps are best treated, as Sir John Burnet has treated them at the Barony Church, Glasgow, on the model of an old friary attached to the friars' church.

(To be concluded.)

At the annual general assembly of the Royal Hibernian Academy, held on October 18 in the Royal Irish Academy of Music, the following officers and honorary professors were elected for the ensuing year:—President, Dermot O'Brien; secretary, N. Blair Browne; treasurer, J. M. Kavanagh; professor of painting, Nathaniel Hone; professor of sculpture, O. Sheppard; professor of architecture, A. E. Murray; professor of anatomy, O. Gogarty, M.D.; professor of literature, W. F. Trench, Litt.D.; professor of antiquities, T. J. Westropp, M.A., M.R.I.A.; professor of chemistry, Sir Charles A. Cameron, C.B.

## HOW TO RESTORE STABILITY TO COTTAGE BUILDING.\*

(Concluded from last week.)

But the burdens which the unhappy builder has to bear do not end with this. When he has bought or leased his land, and paid his lawyer and the stamp duty, and redeemed the land tax, and paid his tithe, another cheerful vista of continual charges opens out before him.

First of all, he has to pay the property tax. To this I do not object. If the assessment is fair, and the payment is made on the actual net income, it becomes an income-tax pure and simple, and that, as I shall hope to show a little later, is the fairest and most reasonable tax of all. But if the house is valued at above a certain sum per year he has to face another imposition in the shape of house duty. That, it seems to me, is simply trivial and vexatious, and it ought to be incontinently swept away.

But when he has politely bowed the income-tax collector from his door and sent him off with a substantial cheque, another much more formidable person comes along—the rate collector, and the toll he takes in the London boroughs varies from 6s. 5d. to as much as 11s. 3d. in the £. And this is typical of all the towns in England. And the rateable value is frequently as variable as the rate. In the interesting statement prepared by the National Housing and Town Planning Council eight shillings in the £ is assumed as an average, but the rates in many instances, of course, are much higher. In Warrington, for instance, they amount to 9s. 4d. in the £. It is perfectly true that in fixing the assessment an allowance, frequently inadequate, is made for repairs &c.; and that in the case of smaller property a substantial reduction is made under the head of compounding, itself a makeshift measure which may perhaps be justified on grounds of practical convenience, but which is beset with anomalies, and, if it is to continue, certainly requires to be reformed; but, when every possible allowance has been made, the burden is a heavy, and, in many instances, an almost overwhelming one. It is this which, more than any other single cause, has made rents high, and which makes it difficult for the builder to provide the poorer class of houses on a basis fair to the tenants and reasonably profitable to himself. It might, however, be accepted if the rates were equal in their incidence and fell in due proportion on the proper shoulders. But this is the very opposite of what occurs. Surely every citizen of every town or place should contribute to its upkeep in proportion to his individual capacity. Will anyone contend that he does so under existing conditions? I know a works in a certain town assessed at, say, £5,000 per annum which did not pay a dividend for years, but it had to bear the burden all that time of an annual rate of between seven and eight shillings in the £. I know, in the same place, of offices assessed at less than a hundred pounds a year with an annual income of perhaps £3,000. And all they had to pay towards the upkeep of the town was a rate upon their annual net rental. The principle is altogether wrong, and it is a principle which underlies the whole of our financial system. In my opinion, a man should pay towards the expenses of the village, the town, the district, the county, or the State in proportion to his capacity to bear the burden. This is the only just and reasonable way. Instead of that, we single out the property from which the income comes and make all sorts of ridiculous distinctions. If, as I have said, a man buys land, we charge him twice as much in stamp duty as we charge him if he is content with stocks and shares. If he holds it we charge him so much every year for doing so. If he sells it we quietly appropriate a third of his profit. But the holder of other kinds of property escapes these duties. Why? If he sells beer, we charge him more than if he sells cocoa. If he sells tobacco, more than if

\* A Paper read at a National Conference of Public Utility Societies, held at the offices of the Garden Cities and Town Planning Association on Friday, October 13, by Alderman Arthur Bennett, J.P., Secretary, Warrington Garden Suburbs, Ltd.

he sells chocolate or candy. If he owns a dog, we tax him; but he can have a whole menagerie of cats and get off scot free. In my opinion, our entire financial system, both local and Imperial, should be revised from top to bottom and reconstructed on a simpler and more equitable basis; and I venture to assert that there is not any fairer tax, for local or Imperial purposes alike, than a universal income-tax, levied upon all whose income exceeds a certain minimum per week, simplified as much as possible, properly graduated, and applied to Imperial, national, and municipal purposes alike. The justice of a universal impost such as this nobody can venture to gainsay, and, altogether apart from its other advantages, it would be logically followed by the abolition of the rates; and so we should at one stroke do more to solve the housing question than by any other single method I can name.

There are various other taxes which it might be necessary to retain or to impose, as matters of social expediency or national protection or Imperial policy; but the universal income-tax should be the basic principle, and it would give to us a foundation broad and strong enough for all our local, national, and Imperial needs.

I am not blind to the various practical difficulties in the way, but the principle itself is so sound that we ought, I think, to set ourselves to solve them, and I shall be amply rewarded for preparing my paper if I am only fortunate enough to induce this representative assembly to carefully consider the matter.

If everybody lived in the place in which he carried on his business the problem would, of course, be perfectly simple. The State, the county, the town, the district and the county councils would prepare their estimates and make a call upon the income of each individual citizen which would be sufficient to meet them. The tax itself would no doubt seem astonishingly large, but we have a certain sum to find for town and country now, and we have only got to find it once; and, if we paid it on our incomes, we should cease to pay it on our shops and houses and the rest of it, and we should have the satisfaction of knowing that everybody paid proportionately to his means.

But the difficulty is that many of us make our livelihood in one place and live in another, and sometimes in two or three or half a dozen. To ascertain the due proportion we should have to find for town and village, for suburban residence and seaside bungalow, would doubtless be a task extremely complicated, though not beyond solution.

A simpler method would be for the State to raise the whole amount by one Imperial tax, and then to allocate it to the various localities concerned. This would have to be done with generosity, but with discrimination, for some towns would require much larger grants than others, and to give them all they wanted might lead to gross extravagance. The Local Government Board at present adjudicates upon the loans required by various public bodies for specific purposes and grants them or rejects them as it thinks expedient. It might be possible for them or for some other authority or series of authorities (the county councils say) to estimate the sums required by each particular area, and to allocate them in accordance with its local knowledge and the local needs. But it would then be necessary for each to cut its coat according to its cloth and to live within its income. This method might not be acceptable at first, but, if we began to look upon the affairs of the United Kingdom as a whole and to regard the nation as one living and united organism, animated by the principle of each for all and all for each, I think that local jealousies would soon die down and all our citizens begin to cheerfully co-operate in building up a better and a saner England. It would mean, of course, that the rich town would help the poor town, and, I trust, that the poor town would love the great. And it is not a new idea. If we accept the principle of the equalisation of the rates in London, there is not any logical reason why a similar principle should not apply to the whole of the country.

I feel, however, that this question of a municipal income-tax, tremendously important as it is, requires to be considered carefully from many points of view, and my main concern at present is to show how much it would contribute to the solution of the special problem we have got to face.

With ancient burdens out of the way, and stupid taxes gone, and rates abolished, and land available on moderate terms, the major obstacles to economic building would be removed and the task before us would be greatly simplified. The present difficulty in obtaining capital would be less acute. People are naturally afraid of lending upon a security so precarious and on an investment which shows so small a return.

But the rate of interest demanded by the mortgagees will probably continue high for years to come, and we must never forget that, altogether apart from the cost of labour and of building materials, the mere increase in the rate of interest charged by the Public Works Loan Commissioners on loans for housing purposes from  $3\frac{1}{2}$  to 5 per cent., according to the careful computation made by the National Housing and Town Planning Council in their recent memorandum, on a house which costs £235 to build, would represent an addition of not less than two shillings per week to the rent; and that is altogether independent of the advance in the cost of building materials.

It is a frightful incubus, and none of us can say how long it will continue or to what extent it will go. I have little hope or desire that wages should go down again, but economic causes will no doubt eventually do something to bring the cost of building material down to something like the normal level. And something should be done to control the maleficent activities of the trusts and combines. The war has forcibly brought home to us many instances of ruthless exploitation, and in some the Government has timidly intervened. But this exploitation is not confined to the war. We groan beneath it every day in every department of our national life. Until the Government assumes control and stops it once for all, we might do something, perhaps, to meet it in our own particular sphere by acting as a great organised body of builders' merchants. The societies we represent would form a splendid nucleus for a big co-operative movement on these lines.

And a good deal might be done to ease the situation by the drastic revision of our antiquated by-laws. In some respects they obviously need strengthening. In others they are equally stupid, oppressive, and inelastic. I have not time to go into details, but the present regulations as to the width of our streets and passages and the character of our paving are instances of what I mean. Short-sighted people chafe at the suggested limitation of the number of houses to the acre, and some, indeed, go so far as to argue that this alone will kill the building trade. The actual difference which it makes in the average ground rent chargeable per house is, of course, a serious consideration, though we are inclined to exaggerate its importance; but, apart from the advantages in space and garden ground which it confers, it can, I think, be proved that the extra ground rent is usually more than covered by the saving in the roads and passages and the more logical lay-out which is gradually becoming an accepted part of all town planning schemes.

But in some respects no doubt the present by-laws are inadequate. And this brings me to my last point. We may reduce our legal charges and acquire cheap land and modify or abolish the present rates and taxes, but I doubt if, after all these things have been done, it will ever be possible in the future to build the kind of houses we desire to see at the old rentals. We, at any rate, are sick of forty houses to the acre. We loathe the thought of the two-roomed hovels, "where 50 per cent. of the people have no closets, no washhouse, no coal-house, and the coal is stored under the bed." We believe that every house should be well built, and have abundant light and air, and a bath and all the other elementary needs of civilised society. We do not



want our gallant lads "to come back from horrible water-logged trenches to something little better than a pig-sty." We are tired of the old interminable hells that we have made:—

Squalid street after squalid street,  
Endless rows of them, each the same,  
Black dust under your weary feet,  
Dust upon every face you meet,  
Dust in their hearts, too—or so it seems—  
Dust in the place of dreams.

We, at any rate, stand for garden cities and towns and villages, and we mean to have them. We welcome the request for twenty million pounds to help to tide us over our immediate difficulties, and we gladly note that Mr. Long has said that it is not enough. But, unless we mean to be the perpetual pensioners of the Government, unless we are to rely upon the State to subsidise the men who are underpaid, unless, indeed, private enterprise in building is to become impossible and municipal authorities and public utility societies to run their housing schemes at a loss, we must establish them upon an economic basis.

There is not any permanent solution of the problem which does not involve the payment of an economic rent. If we are to establish the principle that a man should get a house for less than it costs, there is not any logical reply to his demand that he should get his groceries and his bread and milk and boots and shoes on the same basis.

To prevent mortgagees from raising their interest from, say, 4 or 4½ per cent. when the outside investor can get 6 per cent. on Government securities on the one hand, and on the other to prevent the owner of cottage property from raising his rents in spite of the increase in practically everything he has to buy, may perhaps be justified as a war emergency measure, though I doubt it; but it is the very way to accentuate all the evils of which we complain, and to make the existing difficulty more acute than ever. Until we socialise the whole of our affairs and revolutionise society we must place the building of cottages, like every other enterprise, upon a business basis, and, unless we make it pay, we are simply cutting a big hole in the pocket of the British taxpayer through which the untold millions will continually pour.

To sum up briefly, then, let us do everything we can to remove admitted obstacles from the path of the property builder. Let us provide him with cheap land, relieve him from unnecessary burdens, finance him under proper safeguards and conditions, encourage him to build upon the right lines, and then assure him of security and a reasonable return for his outlay. And if he is not able after that to meet our needs and the bulk of this gigantic burden must eventually be borne by the municipalities or by the State, let us see to it that they work on solvent lines and get the fair return which common sense and public policy demand. That brings me to the question of wages. I will not venture to pursue it now. But it has got to be faced!

### INDUSTRIAL LIGHTING BY ELECTRICITY.\*

[FOREWORD.—This Paper does not aim at illustrating new or special devices in the electrical lighting of industrial establishments, but rather at drawing attention to the points requiring consideration if the best results are to be obtained.]

(Concluded from last week.)

#### Maintenance and Upkeep.

PROPER systematic maintenance of electric lighting installations is a matter which, in this country, has received but the scantiest of attention. It is no uncommon thing for a factory, or other building, to spend a large sum of money in a lighting equipment which, once started, is left to take care of itself indefinitely, with the exception of spasmodic attempts at lamp renewals, and this only when the lamps become either burnt out, broken

or stolen. The cleaning of lamps and reflectors is never thought of. If considered properly, the lighting is virtually a tool, one of the tools necessary to the work going on, and this work cannot be as properly and economically done if this tool is to be allowed to fall into utter deterioration. The cost of lighting commonly bears but a very small proportion indeed to the total stand-by, or "dead-rent" charges of the establishment, and this cost could only be increased by an inappreciable amount when the cost of systematic maintenance is added. In this country there are comparatively few electrical firms engaged in maintenance work and their charges are somewhat diverse, being apparently based more upon speculative guess-work than the results of experience. Recently, the Author had occasion to send out inquiries for maintenance to several firms, specifying carefully all necessary detail. The following summarised figures illustrate the divergence referred to:—

Type of Building.	Maintenance Costs.		
	Firm "A."	Firm "B."	Firm "C."
Commercial	6.4	2.4	2.0
Manufacturing (a)	5.2	3.07	4.0
" (b)	4.5	2.8	4.0

The maintenance costs are expressed in shillings per point per annum, and include renewals of lamps, fuses, switches, &c., and cleaning of all shades and reflectors and lamps monthly, with the exception of Firm "B," who did not include for switch renewals.

Maintenance contracts when carried out by general electrical contractors, should, in the Author's opinion, include a half-yearly test and report upon the insulation resistance of the job; a point by point test of the earthing of all metal work; checking of the supply company's meter readings and quarterly charges, and might also, in many instances, justly provide for a guaranteed minimum illumination in foot candles to be maintained in specified areas or places. In large establishments it would doubtless pay well for the engineer-in-charge, or his staff, to carry out the maintenance duties themselves, the owners, of course, ordering up material required for renewals as requisitioned by them. The necessity of proper maintenance has been emphasised by a well-known writer on factory lighting, Mr. C. E. Clewell, who points out that in extreme cases the loss of light produced by dirt on lamps and reflectors may amount to as much as 50 per cent. From a test which this writer has published concerning a factory installation, the deterioration in lighting due to dust and dirt over a period of 48 days was as follows:—Starting from an initial illumination of 4 foot candles at the end of 6 days this had become 2.8; at 18 days, 2.2; at 36 days, 2.1; and at 48 days, 2. Glass reflectors were used.

The workers themselves who under ordinary circumstances pay little or no attention to the quality of the illumination, did, I noticed in a certain department of a factory, suddenly acquire a most absorbing interest in it—the reason being that they had been changed over from time-work to piece-work. Under the new conditions, mysterious and invisible acts of transference of new clean lamps into this particular department soon developed into a fine art. Proper maintenance had become established—unasked and unpaid for.

#### Supply of Current.

The opportunity is sometimes presented of choosing between a D.C. supply and an A.C. So far as the ordinary working voltages are concerned, there is little to choose between them, if metal filament lamps, either of the vacuum or the gas-filled type, are used. If small candle-power lamps of the ½-watt type are essential, and alternating current is available, a static transformer may be used to convert down from a higher voltage to, say, 50 volts when lamps of the 30 and 60 watts sizes become available for parallel operation, but such cases require careful consideration if the runs of the wiring are of considerable length, as the voltage drop may necessitate unusually heavy conductors. For arc lighting one generally prefers a D.C. supply.

\* A Paper read on October 18 before the Junior Institution of Engineers, by Frederic H. Taylor, Assoc.M.Inst.E.E., Assoc.M.Inst.M.E.

Nov. 3, 1914

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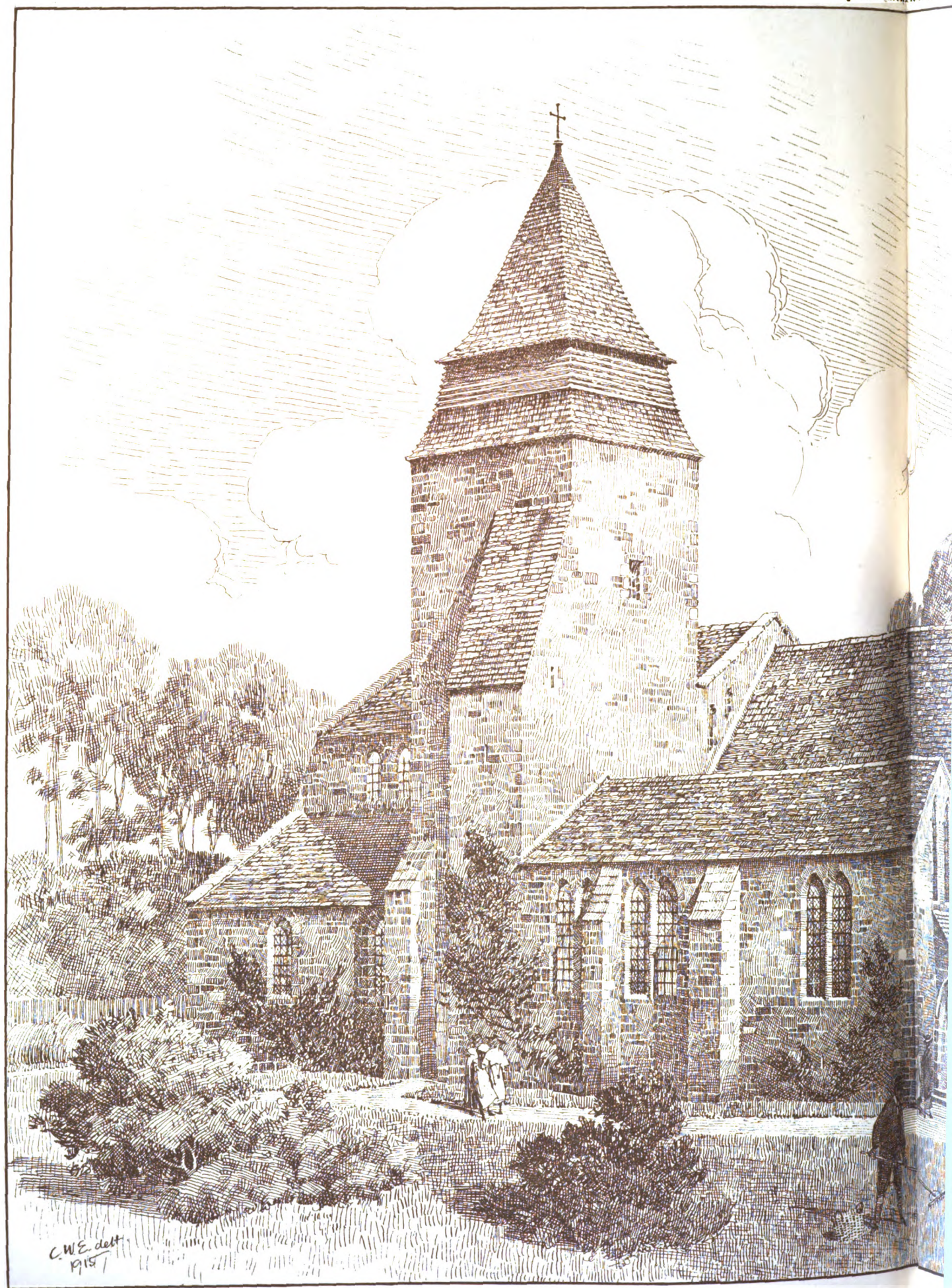
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ST. LUKE'S CHURCH, WALSINGHAM.  
MR. TEMPLE MOORE, ARCHT.

(Royal Academy Exhibition, 1916.)



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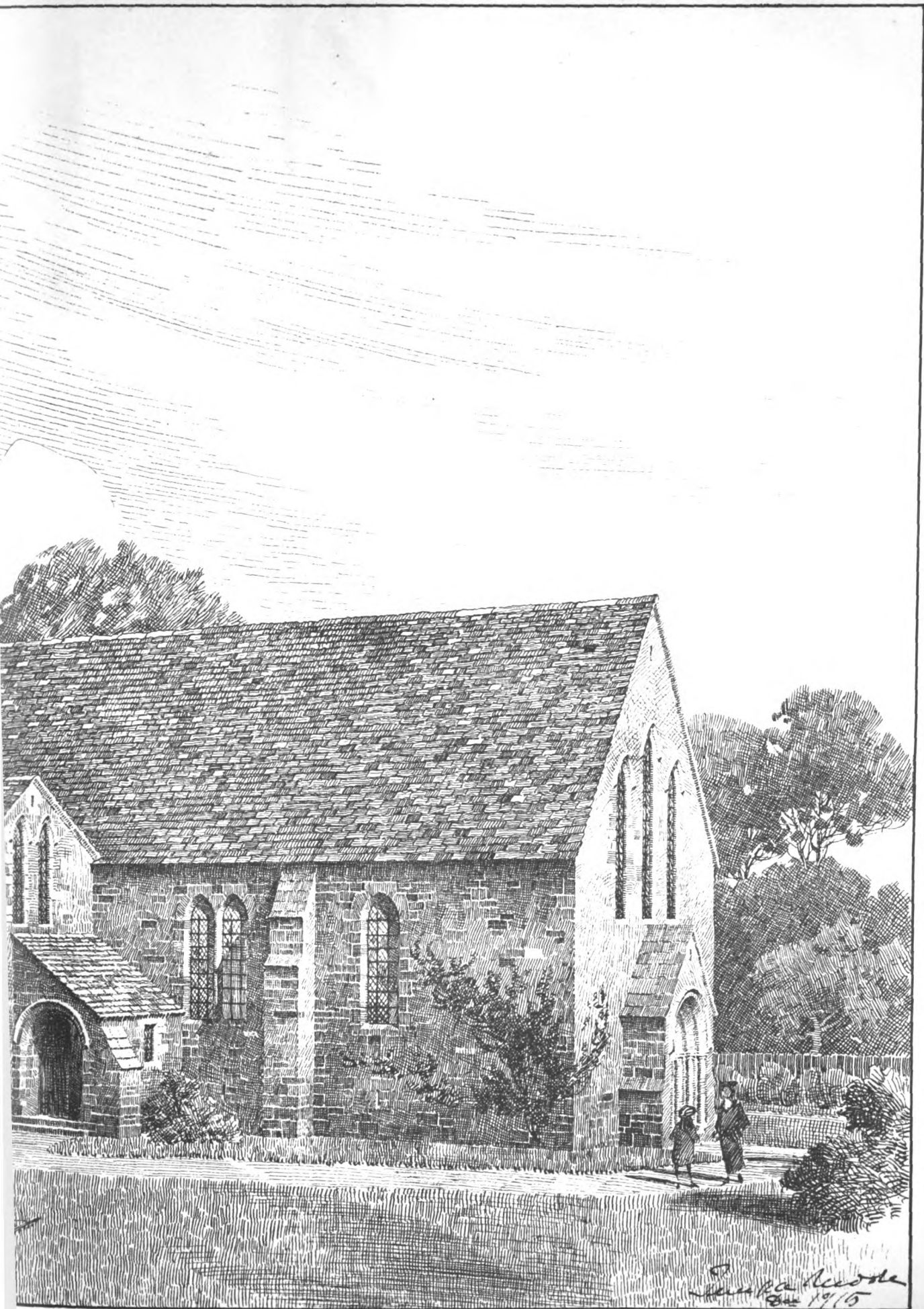
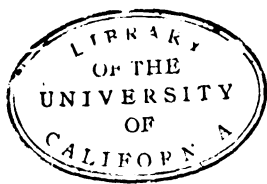


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Messrs. METCALF & GREIG, Architects.



*The Architect*, Nov. 3<sup>rd</sup> 1916.



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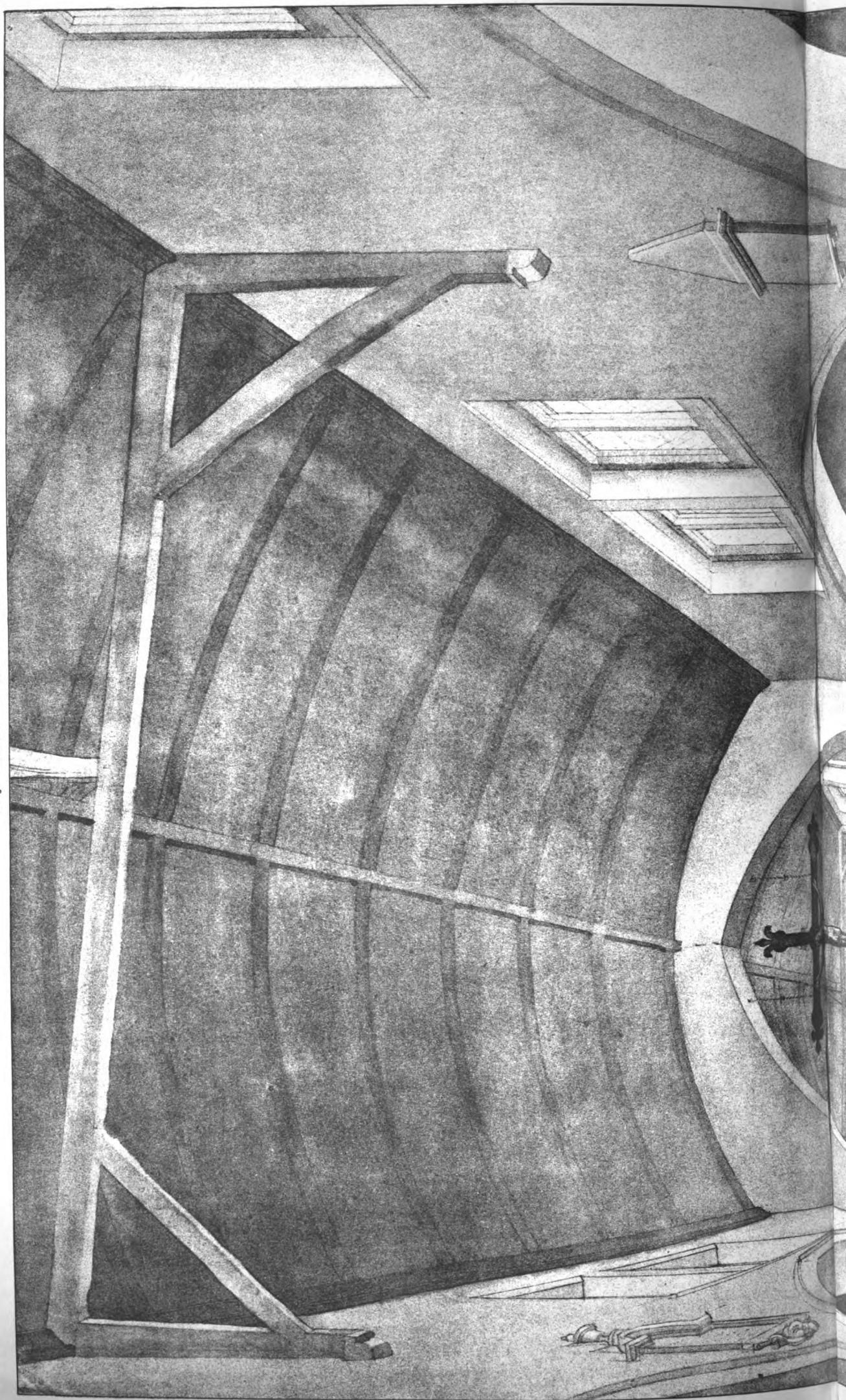
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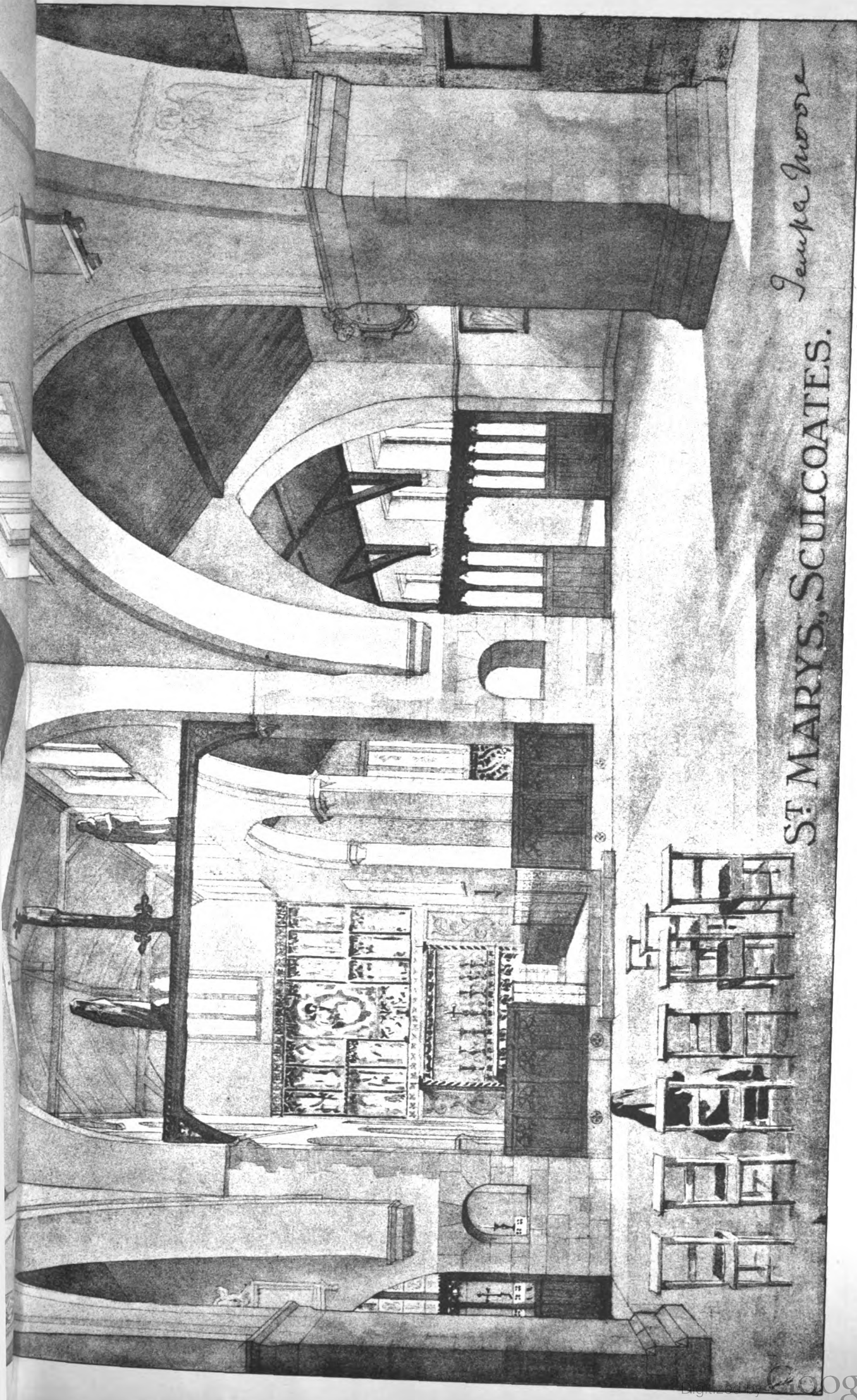






The Architect, Nov. 3rd 1916.





*Leupa Moore*  
**ST. MARYS, SCULCOATES.**

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Royal Academy Exhibition, 1916.)





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With low periodicities fluctuations in light are well known in A.C. arc units. It has been stated that at 25-cycles the variations in brightness in incandescent lamps are quite perceptible to the eye. Naturally the effect becomes more decided if metal lamps of low candle-power, having thin filaments, are employed, these readily receiving or giving up their heat.

#### *Private Plant or Public Supply.*

As to whether the supply of current in the case of a large industrial establishment should be taken from a private plant on the consumer's premises, or from the public supply, when each course is open to consideration, is a question which has long since been the subject of controversy. The central station man is, or should be, a salesman, and is entitled to use all legitimate means of pushing business. Such items as the first cost of a generating plant, interest and depreciation thereon, and the need of skilled labour to look after it, can readily be used as a means of suggesting to the lay mind that to take the supply off the town mains is the only economical thing to do. This does not necessarily follow, however, and essentially so in the case of establishments where a power-plant is put down. The additional cost of making provision in the power-plant for supplying the lighting current is commonly such as to render it well worth doing on economical grounds, whether the plant be for the distribution of the power mechanically or electrically. With a supply from his own plant, the owner has not to watch possible variations in the annual cost of current due to such causes as minimum or maximum demand, total units consumed, &c., nor to enter into any agreement for a number of years in order to get down to what may appear to be a favourable rate for supply.

The whole question must be thought out in an unbiased way, due regard being paid to all the conditions affecting the particular case under consideration.

In settling upon a supply from the public service, the factory owner is frequently well in need of independent advice as to agreements for charging, if the most economical arrangement is to be arrived at. When a typical agreement is put forward for consideration, before the prospective consumer can be advised as to taking up same, one needs to weigh very carefully the several conditions which are commonly sought to be imposed. Such, for instance, as the requirements that all the consumer's lighting must be taken from the one source of public supply only, and this for a period of, say, 3, 5, or more years. Further than this the rate of supply and system of charging are both fixed for the whole period, regardless of possibilities which might prove advantageous if they were open to be adopted. Supply authorities frequently offer alternative methods of charging, usually a flat rate, and a maximum demand system is one of its several forms. With a combined power and lighting load it is not unusual for a consumer to be allowed to have a certain proportion of the total units consumed (say, 10 per cent. to 15 per cent.) to be allocated to lighting, any proportion above this being charged at a somewhat higher rate. In factories where the load is mainly power, this works out very satisfactorily for the consumer, and likewise, no doubt, to the supply authority.

#### *Switch Control of Lighting.*

Proper switch control of lighting is a matter well worthy of more careful consideration than it usually receives, and this would result in added convenience and economy. The points one has in mind are:—

(a) A more liberal use of switches;

(b) Better location, and

(c) The use of two or three point control.

(a) The best of lamp switches are not expensive to buy, and by providing an ample number, in proportion to the lamps installed, every facility is given for exercising economy.

(b) For individual or local lighting, the switches should be as conveniently near as possible to the lamps

controlled. These can be further controlled by a master-switch or switches placed conveniently for use by the shop-foreman, who would also control the "general lighting."

(c) In some cases it is a great convenience to be able to control one or more lights from two or more positions, by what is commonly known as 2-way and also "inter-mediate" switching. Lamps switched near doorways are an example. Economy commonly follows the convenience.

Switches in factories commonly suffer from lack of adequate mechanical protection. Where conduit wiring is adopted, iron switch boxes which absolutely protect the switch and only leave the knob projecting are to be preferred. Owing to its light construction, the ordinary "5-ampere" switch, even if only loaded to less than half this amount, is, at modern voltages, liable to rapid wear. The Author has often found it pay well to adopt switches rated as 10 amperes for 2 or 3 ampere circuits on this account.

#### *Systems of Wiring.*

For factory use, screwed tube is very largely used, as affording a good mechanical job as well as a sound one electrically. From a fire risk point of view it is obviously beyond question.

It should preferably be kept clear of all other metal work, be made electrically and mechanically continuous throughout, and properly earthed at least at one point. Inattention to earthing of metal work, on the one hand, and to the careful insulation of the wiring and electrical conductors generally, on the other, may often lead to very unexpected faults in the lighting, to say nothing of the risk of personal shock or fire.

In these days when cheapness in first cost counts for so much, there are naturally several competing systems, each meeting with more or less success, according to the positions chosen for their use. When placed well out of reach, and in dry situations, open cleat wiring may often be used very successfully to form a cheap job.

With a view to maintaining efficiency in the lighting, attention may well be given to the following details in the circuit wiring:—

(1) "General" lighting to be circuited separately from the local lighting, and, where possible, alternate units to form a circuit;

(2) A more liberal allowance in the number of circuits or "ways" per distribution board should be adopted, thus insuring a minimum of the lighting units being out of action in the event of a circuit fuse blowing;

(3) Motor circuits to be entirely distinct from those supplying lighting, both as regards wiring and the fusing at main or sub-main distributing boards.

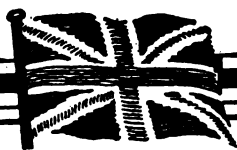


[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### **Cost of Daylight v. Electric Light.**

SIR.—There seems to be much misapprehension, particularly amongst architects, as to the point that daylight costs nothing, and so much tendency to sacrifice valuable space to secure daylight illumination when artificial lighting could provide illumination far more effectively and cheaply, that I would like you to give me sufficient space in your columns to publish the following letter written by Mr. M. Luckiesh, of the Laboratories of the National Electric Lamp Association, of Cleveland, to the "Lighting Journal" of New York.

"In lighting discussions it is not uncommon to hear such statements as this: 'A great virtue of daylight is that it costs nothing.' Outdoors this is usually true; but in the vast field of human activities where artificial light aids and competes with natural light, such a state-



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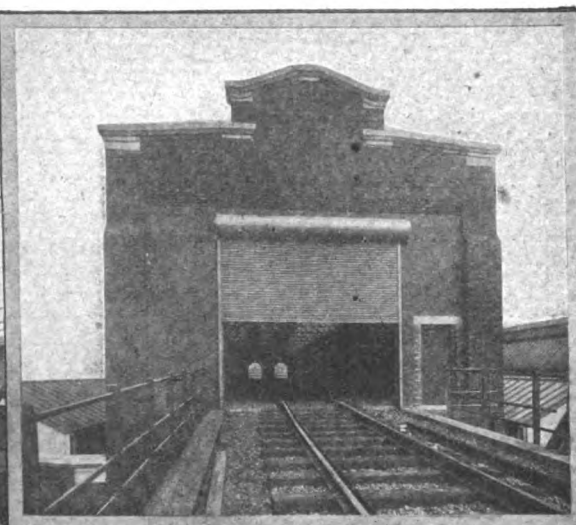
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MANCHESTER : 33 Arcade Chambers, St. Mary's Gate.

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ment is absurd. From the standpoint of construction, openings such as windows and skylights are not costless. In other words, interest upon a permanent investment as well as a maintenance cost must be charged to the daylighting, and therefore at once it ceases to be free from cost. Furthermore, when the value of land, especially in large cities, is considered, a light court in the middle of a multi-storeyed building adds to the cost of daylight. In such a case a large area of rental space is sacrificed for the purpose of admitting daylight; and it appears that the cost of daylight would not be inconsiderable. Of course, light courts provide ventilation, but it seems possible that ventilation could be provided without such a great sacrifice of space.

The discussion could be carried further to the consideration of valuable wall space in stores where rental prices are high, and possibly even in factories.

By no means is this comment designed to suggest the abolishment of daylight even in cases where it might be found too costly, but rather to suggest that some architect who may have figures available favour us with a discussion of the cost of daylight."—Yours, &c.,

Mazda House, F. W. WILLCOX.  
77 Upper Thames Street, London, E.C.,  
October 31, 1916.

## BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

### ENGLAND.

#### ESSEX.

*Aveley*.—Four cottages, Watery Lane, for Mr. A. Parrish.

*Southend-on-Sea*.—Bungalows, Southborough Drive, for Mr. S. G. Rutherford.

Nos. 301-3 London Road: conversion into shops for Messrs. Willett & Retzbach.

#### LANCASHIRE.

*Bolton*.—Lostock Mills: garage, &c., for Messrs. W. Heaton & Sons.

Proposed Baptist primary school, Astley Bridge. Workshop, Romney Street, for Mr. James Haslam.

*Great Harwood*.—Proposed St. Wulstan's R.C. church and rectory (£6,000).

*Morecambe*.—House, Mayfield Drive, Bare, for Mr. R. Bibby.

*Newton-le-Willows*.—Proposed St. Philip's Church Hall, Newton Common.

#### LINCOLNSHIRE.

*Frodingham*.—Canteen, caretaker's house, surgery, &c., Station Road, for the Frodingham Iron and Steel Co.

*Gantham*.—The "George" Hotel: additions. Messrs. Parks & Son, builders, 5 Swinegate.

Earlsfield Leather Works: additions for Messrs. A. & J. Shaw, Ltd.

#### STAFFORDSHIRE.

*Chase Terrace*.—House, New Street, for Mr. I. Wright.

#### SURREY.

*Cobham*.—"Hatchford Park": stabling for Sir H. S. Samuelson, Bart.

Cobham Motor Works: alterations and extensions. Messrs. Shoosmith & Lee, Ltd., builders.

*Epsom*.—"The Durdans": addition for the Right Hon. the Earl Rosebery.

*Woking*.—Workshop, Maybury: extension for Messrs. Martinsydes, Ltd.

#### SUSSEX.

*Eastbourne*.—No. 78 Latimer Road: addition. Mr. C. Breach, builder, "Meads."

No. 40, Ocklynge Road: addition. Mr. A. Avard, builder, "Bankside," Charleston Road.

"Saltwood," Spencer Road: conversion into flats.

Mr. P. D. Stonham, architect, 58 Grove Road.

Messrs. Miller & Selmes, contractors, 75 Tidewell Road.

Stables, Meads Street: alteration. Mr. A. Ford, architect, 71 Gildredge Road.

*Newhaven*.—The "Engineer" beerhouse: alterations. WILTSHIRE.

*Swindon*.—No. 87 Regent Street: extensions. Messrs. Bishop & Fisher, architects, Regent Circus.

#### WORCESTERSHIRE.

*Kidderminster*.—Store, Coomberton Terrace, for Shell Marketing Co., Ltd.

#### YORKSHIRE.

*Dewsbury*.—Proposed Council School, Ravensthorpe.

*Keighley*.—Proposed S. A. Barracks, Cooke Lane (£3,600).

*Lepton*.—Works: extensions for Messrs. Henry Shaw & Sons.

### WALES.

*Swansea*.—Eye Hospital, Phillips Parade: workshop. Three houses, Cecil Street, Manselton, for Mr. W. Samuel.

### SCOTLAND.

*Aberdeen*.—Nos. 7 and 9 Ferryhill Place, for Mr. Alex. Duthie. Mr. John Rust, architect.

*Cullculden*.—Cottages, Culbo Mains. Mr. D. Matheson, architect, Town and County Bank Buildings, Dingwall.

*Invercarron (near Stonehaven)*.—Warehouse for Messrs. E. G. Gibb & Son.

### IRELAND.

*Enniskillen*.—Heathdale House: alterations. Messrs. F. E. Townsend & Son, architects. Mr. J. Bloomfield, junior, contractor, Brookeborough (Co. Fermagh).

THE University of Liverpool has received a sum of £8,000 from Mr. C. Sydney Jones, a local shipowner, for the endowment of the Chair of Classical Archaeology in memory of his father. The chair is at present held by Professor R. C. Bosanquet.

THE death occurred at Detroit on October 21 of Mr. Harold Beckwith Richards, A.R.I.B.A., youngest son of the late Captain John C. Richards, of Sydenham, and of Mrs. Richards, Belfast.

A MEMORIAL tablet has been designed by Sir T. Graham Jackson, R.A., to Mrs. Claudine Paston Brown, one of the foremost social workers in Wimbledon for over twenty years. It was unveiled in Wimbledon Public Library on Saturday afternoon.

THE Lord Mayor has presented to the Church of St. Mary-le-Bow, Cheapside, a portrait by Sir Godfrey Kneller of Dr. Samuel Bradford, a former rector of the parish, who was Chaplain-in-Ordinary to William III. and Queen Anne. Sir Charles Wakefield suggested at the ceremony that citizens who were in possession of similar artistic treasures should not allow them to leave the City and go to America and other countries.

THE Liverpool City Council at their last meeting discussed the proposal (carried by one vote in committee) to open the Autumn Art Exhibition on Sunday afternoons. Alderman John Lea argued that if the exhibition were to be opened there was no reason why cinema and other shows should not also open. One never heard of the Royal Academy or other large London institutions being opened. Sir Wm. Forwood said the mere opening could not do otherwise than good to those who went to the exhibition. When the four million men now at the Front came home we were going to have broader views and do away with narrow sentiment. Other speakers opposed the proposal on the ground that it would give public entertainers the right to open on Sundays, and on the vote being taken the proposal was defeated by 35 votes to 31.

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**To our Advertisers** (*Agents please note*).—In future only two proofs can be submitted, if proof is required. No change of copy in Advertisement can be made unless copy and blocks are received by first post on Monday morning. No alteration of copy can be made after first post on Wednesday morning. No proofs will be sent unless asked for.

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# THE ARCHITECT

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## FORTHCOMING EVENTS.

*Friday, November 10.*

Town Planning Institute : Paper entitled "Town Planning in Wales, with special reference to the Development of Hilly Sites," by Mr. T. Alwyn Lloyd, at 6 P.M.

*Monday, November 13.*

The London Society : Paper entitled "Dulwich History and Romance," at the Royal Society of Arts, by Mr. Edwin T. Hall, F.R.I.B.A., at 5 P.M.

Surveyors' Institution : Opening Address of the Session by the President, Mr. George Francis Stewart, at 5 P.M.

*Tuesday, November 14.*

Arts and Crafts Exhibition Society : Discussion on "New Aims for Commerce," at the Royal Academy; Sir Kenneth S. Anderson, K.C.M.G., in the chair, at 3.30 P.M.

University College, Gower Street, W.C. : The second of six public lectures on "The Town Planning of Greater London after the War," by Professor S. D. Adshead, M.A., F.R.I.B.A., at 5.30 P.M.

*Wednesday, November 15.*

Northern Architectural Association : Annual General Meeting at 6 Higham Place, Newcastle-upon-Tyne, at 4.30 p.m.

*Thursday, November 16.*

L.C.C. Central School of Arts and Crafts, Southampton Row, W.C. : University Extension Lecture VII. on English Architecture : "Mediaeval Parapets, Carved Ornament, Sculpture, Stained Glass, Church Fittings," by Mr. Banister Fletcher, F.R.I.B.A., at 6 P.M.

## THE ARTS AND CRAFTS EXHIBITION.

Now that the chaos which marred the effect of the first view of the transformed rooms of the Royal Academy on the opening day has been reduced to order, we are able to appreciate with some attempt at fairness the successful attainment of the high ideal that the organisers of the present exhibition have appeared to set before them as the goal of their endeavour.

Owing to the force of circumstances previous exhibitions of the Arts and Crafts Exhibition Society have rather tended to impress the general public with the notion that the Arts and Crafts movement was concerned with the minor things of life's environment, furniture, embroidery, smithery, and jewellery, and that in relation to these it was essential to the existence of æsthetic quality that the name of the actual craftsman, whose handiwork was exhibited, should be recognised and published. In the early days of the endeavour to educate the Philistine to the fact that art is not limited to oil-paintings in gilt frames it was perhaps just as well that the Society should be restricted to imparting the first lesson that a chair or a table, a poker or a bed-spread, is quite as capable of ranking as a work of art as a portrait in oils by a Royal Academician.

The opportunity afforded by the present occasion has enabled the Society to enforce, not only on the Philistine but on architects, painters, and sculptors generally, the much-needed lesson that a noble building is a combination of architecture, painting, and sculpture, that it is only complete when these three branches of art co-operate harmoniously to form an enclosure for beautiful accessories, each with its individual charm but each subordinated in expression to play its part as a component of an harmonious whole.

The first part of this lesson has, in our opinion, been successfully elucidated. The second is illustrated by contrast rather than by universal example. We may illustrate our meaning by a comparison of what we regard as the two most prominent rooms of the exhibition, the central octagon, transformed into the "Ecclesiastic" centre, and the large gallery of the Academy, remodelled into a "Hall of Heroes." In the former the treatment of the whole apartment hangs together in, to our mind, a thoroughly satisfactory harmony. Distinctly different and varied as are the four apsidal chapels, they nevertheless seem to be part of one harmonious whole. It would be scarcely possible to conceive two more strikingly opposed treatments of an altar setting than the

chapels by Mr. Louis Davis and Mr. Reginald Hallward, but their opposition is complementary, not contradictory. They are the soprano and bass parts of a composition the tenor and alto of which are admirably furnished by the chapels designed by Mr. Wilson and Mr. Spooner to unite in one harmonious whole, well tied together by the treatment of the wall and openings. In short, we regard the "Ecclesiastic" centre as the greatest success of the exhibition. It forcibly inculcates both parts of the lesson to which we have referred. Also it illustrates the primary principle of decoration that harmony is distinct from unison. Take again, for example, the two chapels of Mr. Davis and Mr. Hallward. Each has its forcibly emphasised unity of tonality, strongly opposed but yet harmonious.

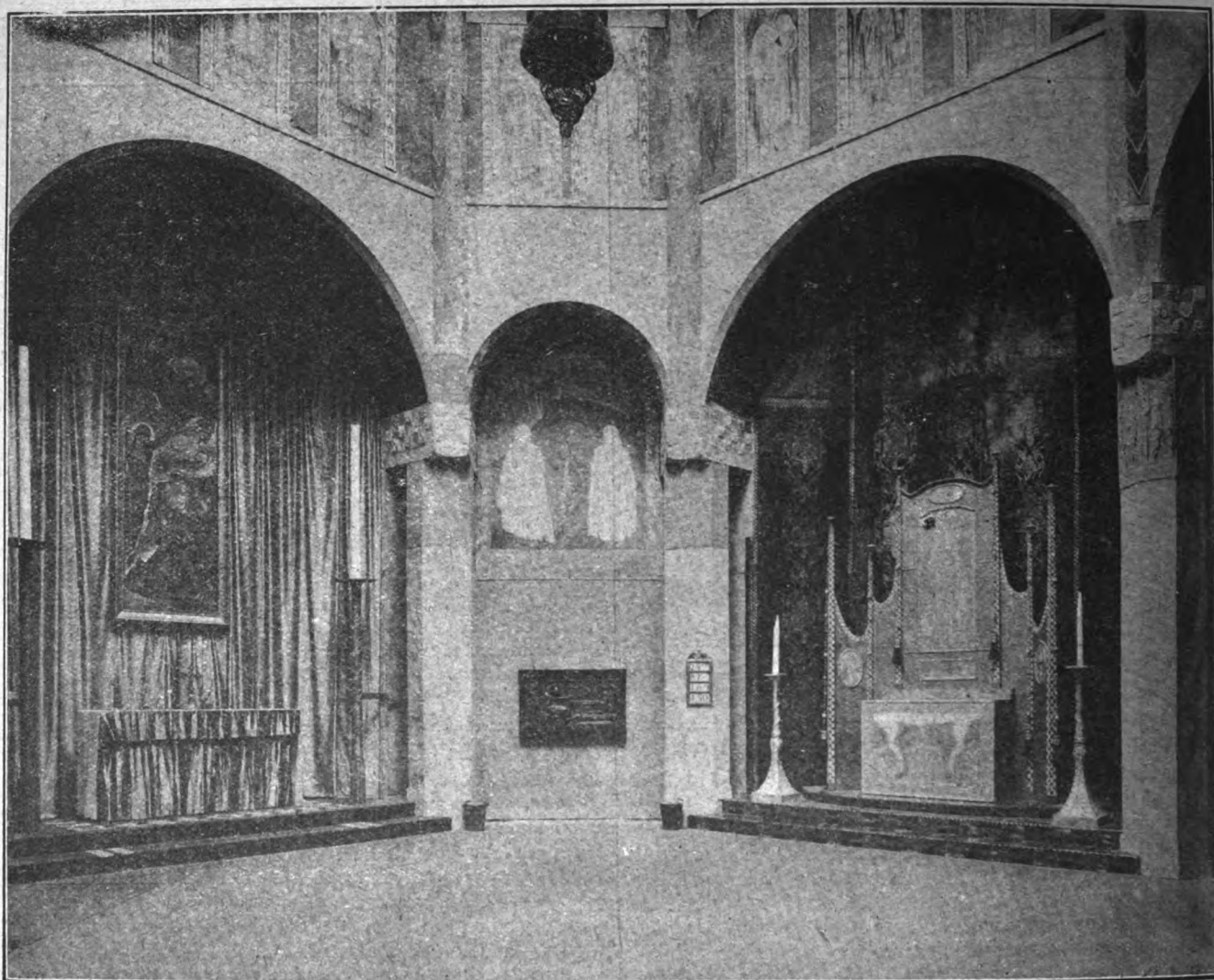
In the "Hall of Heroes" we are unable to recognise that harmony of the whole which we have postulated as essential to the satisfactory completion of a noble building. Doubtless the conditions under which the exhibition has had to be rushed into existence rendered practically impossible the transmutation of the great Academy gallery into a civic hall, in which architecture, painting, and sculpture should co-operate in the conception of a single harmonious entity.

We should be inclined to believe that Mr. Wilson recognised this practical impossibility in the form that he has given to the architectural framework. The division into distinct alcoves, by strongly projecting buttresses suggests that he anticipated that the wall paintings by which they are occupied would not be characterised by that harmony of conception and execution that might have been anticipated, had the whole series been evolved by a Puvion de Chavannes.

Obviously the time at the disposal of the organising committee precluded any attempt to confide the whole scheme of mural painting to one individual. Nor would it have been politic, to speak frankly, to damp the enthusiasm of the many willing workers who have assisted in the realisation of the Society's enterprise, by subordinating their activities to one dominant spirit. The result, however, is that we have an example of collaboration, rather than of co-operation between the various artists in architecture, painting, and sculpture, whose productions are now before us.

The Hall of Heroes is, in short, rather a museum of art than an æsthetic unity. There can be no doubt, as we have before pointed out in the columns of "The Architect," that an harmonious whole in a scheme of





ARTS AND CRAFTS EXHIBITION.—VIEW IN "ECCLESIASTIC" CENTRE.

decoration, whether it be of a series of stained glass windows, a collection of wall paintings, or any other form of embellishment, is far more likely to result from the endeavour of a single artist, of even mediocre ability, than from the association of a number of pre-eminent individualities, each with his own strongly marked personality. Hence it is that, in the Hall of Heroes, we have illustrated by contrast the necessity for a completely noble building of harmonious co-operation. In a lesser degree, but in a similar manner, the sculptural work in the Hall of Heroes is devoid of the quality of harmonious co-operation; and this, not only amongst the members of its own class, but in its association with the architectural and pictorial components of the whole.

That part of the lesson which inculcates the necessity in a noble building for a combination of architecture, painting and sculpture, is, however, as well enforced in the Hall of Heroes as elsewhere in the exhibition. It should open the eyes of both the general public and those artists who have hitherto regarded their own sphere as a close enclave to the necessity for co-operation between all forms of art, which it is too customary to consider as separate classes if not distinct arts. It illustrates the truth that there is not an art of architecture, another of painting, and another of sculpture. There is but one Art, the creation of the beautiful.

In the Municipal Hall, which has been fashioned out of the Academy's Lecture Room, we regard the major decorative paintings, those of "Crafts," on the north wall, by Mr. Charles Sims, and "The Arts of Peace," on the south wall, by Mr. Maurice Greiffenhagen, as happy illustrations of the possibility of harmonious co-operation by distinct individual artists, but the ensemble

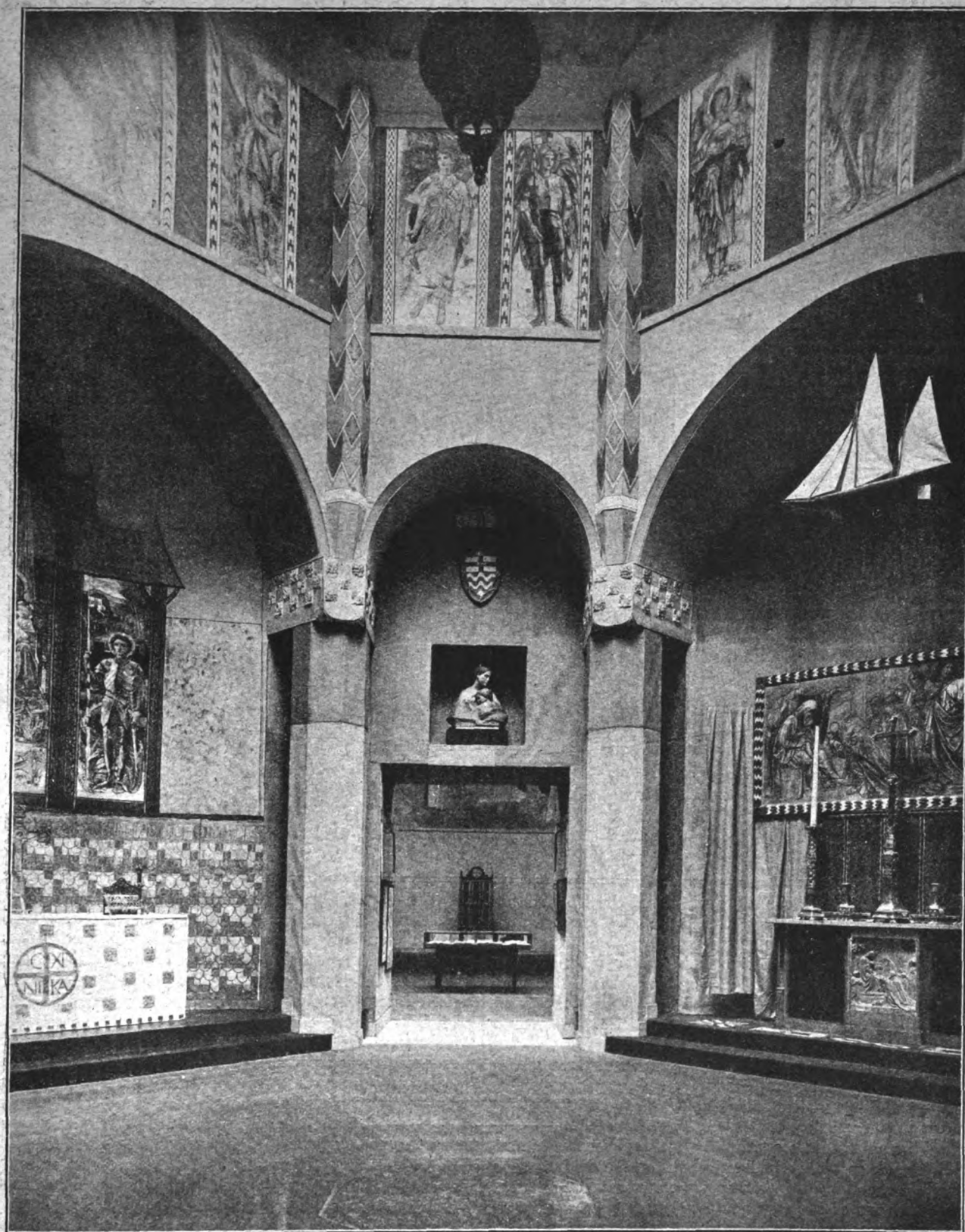
of the whole room is upset by Mr. Clausen's painting of "The Ancient Arts" in the east wall, and Mr. Anning Bell's composition of "The Awakening" on the opposite west wall. These latter are in sympathy neither with each other nor with the major decorations. Instead, therefore, of becoming components of one complete scheme, they remain rather samples of varied possibilities in the treatment of wall decoration. This is the more to be regretted because, despite the necessarily somewhat varied assortment of smaller objects in the room, which tends to develop a museum or show-room character, the collection of show-cases and sculpture manages nevertheless to maintain unity of harmonious composition.

By the courtesy of the Arts and Crafts Exhibition Society we are able to include views in the exhibition from photographs by Messrs. Henry Dixon & Son, of 112 Albany Street, N.W.

#### NOTES AND COMMENTS.

THAT the housing problem will, after the war, be one of the most pressing of social questions to be answered is now universally admitted, particularly in view of the serious scarcity of what are known as cottage houses in this country for both rural and urban workers. Therefore, any suggestion that may appear to assist in the solution of the problem is worthy of consideration. In the columns of the "Liverpool Courier," Sir William Lever puts forward a novel suggestion for which he advances powerful arguments. Sir William must be admitted to be a business man of the highest ability, and the experience he has gained in the housing of his own workpeople at Port Sunlight qualifies him as an expert





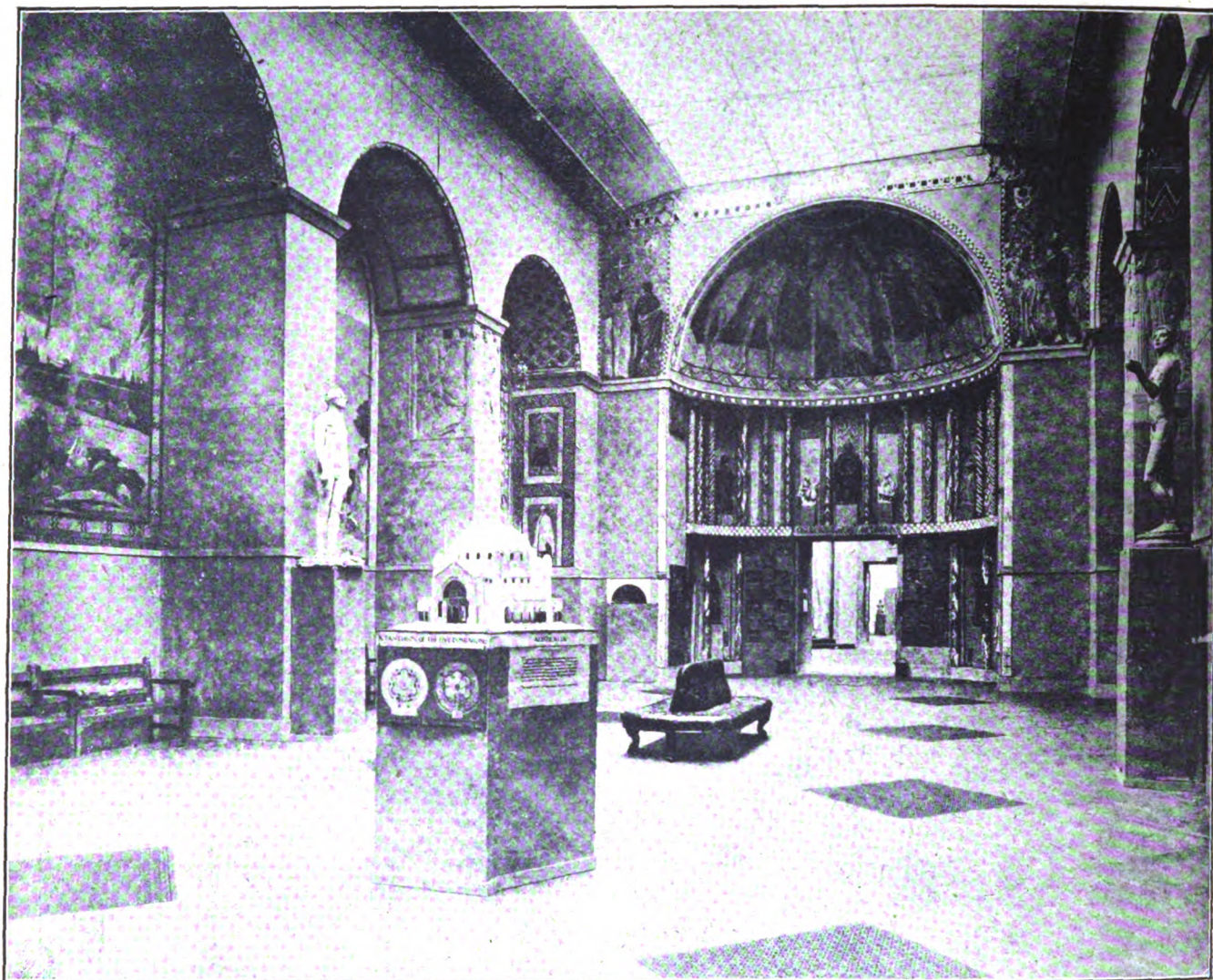
ARTS AND CRAFTS EXHIBITION.—VIEW IN "ECCLESIASTIC" CENTRE.

in housing to express opinions that are entitled to respect. Sir William Lever's proposition is that land should be provided free for the erection of cottage houses by private enterprise. It is recognised on all sides that under existing conditions private enterprise, unaided, will not attempt the provision of the necessary housing accommodation for workers. The State must assist, having killed private enterprise, in some way or other. The Government might build all the houses required at the expense of the nation, finding all the money required, and letting the houses at such rentals as could be obtained. Sir William Lever instances the Government estate at Woolwich as a typical example of blundering in housing—1,400 houses without a day school or a single site reserved for churches

or chapels, Sunday schools, or assembly halls. Sir William's suggestion is that municipalities should buy and lay out estates for their own locality, and provide land free for private enterprise to build cottages. His contention is that the increased rateable value created would provide interest and sinking fund for the expenditure on the land.

In Glasgow the Town Clerk, Sir John Lindsay, makes a contribution to the solution of the housing problem by suggesting a Commission whose object would be the production of an ideal plan of the city. He proposes that such a Commission should consist of, say, two architects,





ARTS AND CRAFTS EXHIBITION.—HALL OF HEROES.

two engineers, the Master of Works, and the Chief Sanitary Inspector. The city would be apportioned into divisions such as the existing wards, which would be considered separately by the professional members of the Commission, and a simple sketch plan produced by each. Thereafter, these sketches would be considered together, and the best points of each embodied in the plan which would represent the opinion of the majority. In this way the whole city would come under the review of the Commission. A section of the city requiring immediate attention, in the matter of demolition of, or alterations to, existing properties, or housing provision for the working and the poorer classes, would, of course, receive preferential consideration by the Commission. By dealing with the whole question in this comprehensive way the chances were in favour of improvements being of a more permanent character than they were likely to be by dealing with isolated sections. At the present time few architects or engineers were much occupied, and there was little doubt that for a special work of this kind the city would command its best available talent for the general benefit, and the fees need not be great. One of the difficulties of having a competition or competitions at the present time was that many of the younger architects and engineers, some of whom had a talent for this work, were at present either at the war or training for it, and consequently could not take part in the scheme; but when the war was over the municipality would, with such a scheme as outlined, be in a position to promote competition if they thought fit, or they could select those men they thought most suitable for carrying out such work as, in respect of urgency, they resolved to proceed with.

The deputation received by Mr. Walter Long, as President of the Local Government Board, on the subject of the provision of arterial roads in Greater London, gathered cold comfort. First, said Mr. Long, they were obliged to think now solely of the war, and its successful prosecution was the one object of their lives. Before the Government could make any statement as to the guarantees asked for in the matter of arterial roads it was necessary to ask themselves what position they were in to give any guarantees at all. All he could do at present was to ask Sir George Gilbert, as head of the Roads Board, to examine the schemes, and they would no doubt report to the Government in due course as to the relative importance of the roads. If he were Minister still at the end of the war it would be his duty to advise the Government that their first call upon public funds ought to be for the provision of housing in the country and sanitation and water supply, without which housing was of little value.

It is characteristic of our present Government to think that housing and roads can be regarded as separate and distinct questions.

An important movement is on foot, as part of the improved commercial organisation that will be necessary in this country after the war, whereby the business community will be able to get into more convenient touch with commercial and industrial information of all kinds, home as well as foreign, which may be useful to them in the pursuit of their business. What is aimed at is the institution of well-equipped commercial libraries in all centres. The Board of Trade is very desirous that the



big towns and cities should make a beginning, so that in time the entire country may be linked up with libraries of wide scope and current interest, comprising not only the latest statistical information, but also authoritative reference works on the technical details of trades with which the different localities are concerned.

In most cases, of course, this can be best done by municipalities developing their existing reference libraries in a new direction. It is, therefore, so far satisfactory that a start is being made. Glasgow has taken the matter up, with the hearty support of the Board of Trade. The scheme there connotes the establishment of a branch of the city library in a special building situated near the Exchange, and in the heart of the business life of the city. The matter has also been broached at Liverpool, and in Leeds the City Librarian has brought the proposal before his committee, and it has been sympathetically received by them. Libraries of this kind would aim at getting together standard quick-reference books, important periodicals representing every branch of commerce, trade, and industry, the principal guides and directories (especially those relating to manufactures, trades, shipping, and railways); telegraph codes, company reports, British and foreign Consular reports, official reports of the Board of Trade and the Board of Agriculture and Fisheries; manufacturers' catalogues, and lists of tariff rates; also the publications of the Chambers of Commerce of the country; and the latest maps and other publications of value in the transportation of goods by land and water; trade returns and statistics, Blue-books, trade journals, and commercial summaries. In addition, the American, English, and German specifications would also form an important section of this department.

Mr. Arthur Francis Spender follows up in the "Morning Post" the appeal by the Società Leonardo da Vinci for the protest of the civilised world against the continued bombardment of Venice from the air. He tells us that on the night following the fall of Gorizia some twenty aeroplanes threw a hundred and thirty bombs on Venice and caused thirty fires. But the effect on the populace was quite other than that expected by the Austrians, and when, a few nights later, an incendiary bomb fell in the Piazza within five or six metres of the façade of S. Marco this exasperation reached the highest point. No military objective of any importance was injured on any occasion. The Italian authorities are anxious that these facts should become as widely known as possible, for Venice is in a sense the artistic patrimony of the whole world, and the repeated incidence of the bombs in the neighbourhood of St. Mark's is an added proof that the barbarians still wish, as they have so often before wished, to destroy the miracles created by the genius of Latin civilisation. Leaving alone for the moment the wider issues of Mr. Bagot's letter, he gathers from the Commendatore Angiolo Orvieto that nothing would be more agreeable to our Italian friends than a national English protest against these wanton attacks on Venice signed by eminent men in every walk of life, by the representatives of our universities and learned societies, and by the curators of our art collections, museums, and libraries. He has therefore drawn up the following formula:—

"We, the undersigned, affirm that it is the duty of the present generation to preserve the heritage of art that has been handed down to us. We therefore record our indignant protest against every assault upon this heritage, and in particular against the repeated bombardment of Venice by enemy aeroplanes without any serious military objective. We hold such acts of barbarism up to the reprobation of the whole civilised world."

Friends of Italy should do all they can to bring this protest to the notice of those concerned, and send their adhesion either direct to Commendatore Angiolo Orvieto, Presidente della Società Leonardo da Vinci, Florence, or to Dr. Edmund Gardner, I.L.D., St.

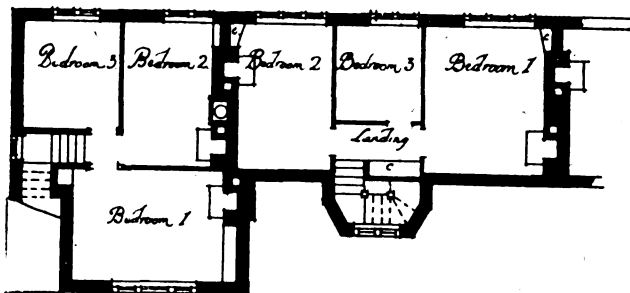
Joseph's Cottage, Mill Hill, N.W.? Anyone wishing for a printed copy of the protest, with space for some twenty or thirty signatures, should apply to Dr. Gardner.

David Garrick's bedstead, which through the generosity of Mr. H. E. Trevor, a direct descendant of the actor's brother George, has been added to the collection of the Victoria and Albert Museum, will for the public generally be esteemed as a relic of Garrick rather than as an excellent example of eighteenth century furniture. It was made about 1775 for Garrick's villa at Hampton; and although the bedstead has been widened and lengthened a little, the change has not interfered with its original symmetry of design. A wooden canopy rests on four graceful columns, reeded and surmounted with lotus capitals in Egyptian style, and they are painted in green and yellow, which seem not to have been retouched since they were first applied. These colours harmonise with cotton hangings painted with bold "Tree of Life" designs, which were made in a factory of the East India Company at Masulipatam, Madras. The hangings were presented to Garrick by Calcutta merchants, and on their arrival in England they were "held up" at the Customs House, and Mr. Trevor has several letters written by Garrick in 1775 humorously complaining of their detention.

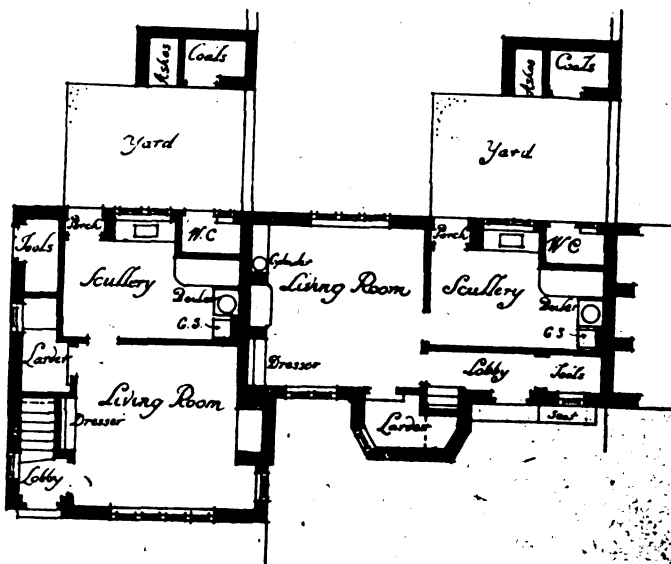
## ILLUSTRATIONS.

### COTTAGES, BROMBORO' PORT.

THIS design, which was exhibited at the Royal Academy this year, was premiated in the competition promoted by Messrs. Lever Bros. Alternative designs were submitted, which showed the main lighting obtained respectively



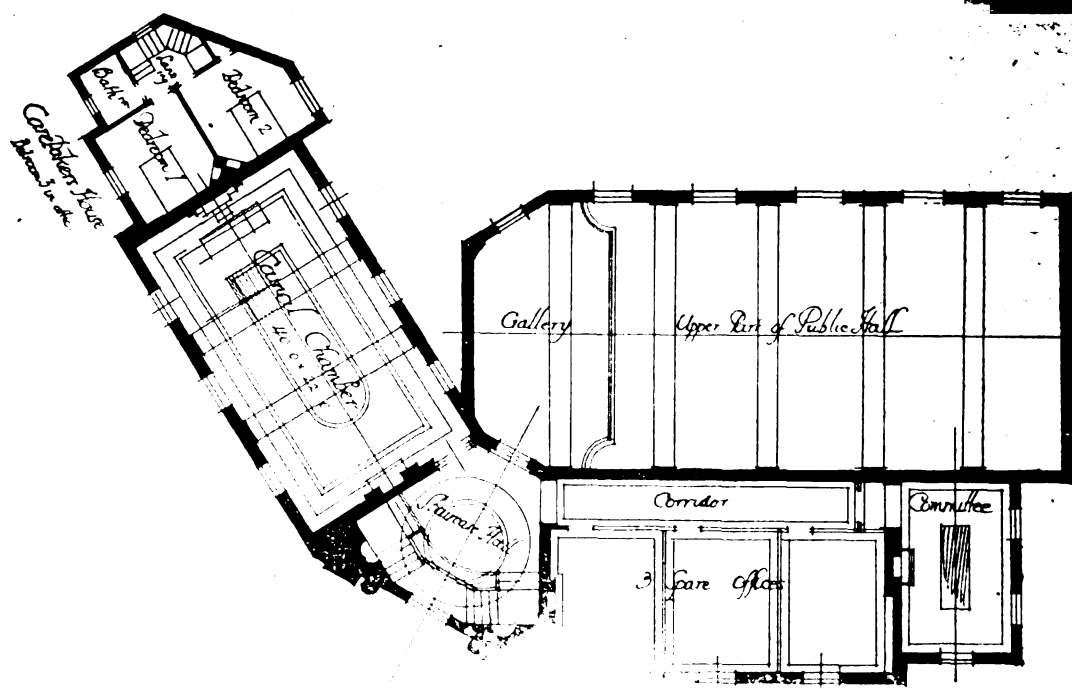
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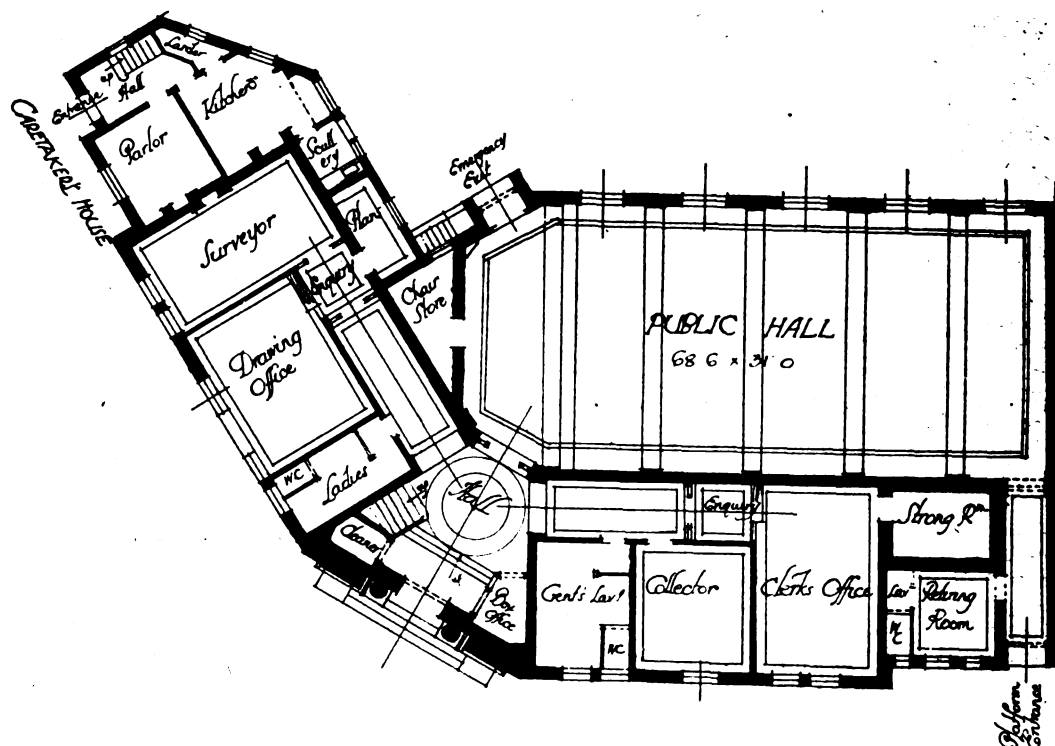
GROUND FLOOR.

from the front or the back, according to aspect. The design illustrated is intended for sites facing north or west, the principal lighting being from the rear of the block.

The architects are Messrs. Halliday & Paterson and C. Gustave Agate.



FIRST FLOOR.



GROUND FLOOR.

**PUBLIC OFFICES, WILMSLOW.**

THIS design obtained the first premium in a limited competition held last year, which was assessed by Messrs. Briggs, Wolstenholme & Thorneley. It contains the public offices of the District Council; the council chamber on the first floor, a public hall, and caretaker's house. The site, none too large in size, and occupying an obtuse

angle between two main streets, while affording an exceedingly good situation for the building, presented unusual difficulties. The chief motive of the plan was taken from this obtuse angle.

The estimated cost, at the time of the competition, was £5,006. The architect is Mr. J. Theo. Halliday, A.R.I.B.A., of Messrs. Halliday & Paterson.

**ST. BARTHOLOMEW THE GREAT, SMITHFIELD.**

OUR illustration reproduces a drawing by Mr. Henry G. Webb, showing the recent alteration to the entrance to St. Bartholomew's, Smithfield.

**S. MARIA DELLA SALUTE.**

THE reproduction of the etching by Mr. Mortimer Menpes appears in our pages by kind permission of the artist and the Leicester Galleries, and reference will be found thereto in our art critic's review of the exhibition.

THE Council of the Civics Institute in Dublin have arranged for a free public lecture, to be delivered, by permission of the Council of the Royal Dublin Society, in their Lecture Theatre on the evening of Friday, the 17th inst., by Mr. Raymond Unwin, F.R.I.B.A., on the "Replanning and Reconstruction of Dublin." The Lord Mayor will preside, and the Lord Lieutenant has intimated his intention of being present on the occasion. Mr. Unwin, whose lecture will be profusely illustrated with lantern slides, will deal specially with the recently concluded replanning of Dublin competition.

# ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE opening meeting of the 83rd session of the R.I.B.A. was held at Conduit Street, W., on Monday afternoon last; the President, Mr. Ernest Newton, A.R.A., in the chair.

## ROLL OF HONOUR.

Mr. E. Guy Dawber, Hon. Secretary, said it was his melancholy duty to read the names of members serving with the Forces whose lives have been given for their country, since the meeting last held in that room. Most of them were young men on the threshold of their career. Some had already given promise of achieving a distinguished position in their art, and it may truly be said that Architecture has suffered a very real loss by their death. The names were as follows:—

Major Herbert Phillips Fletcher, D.S.O., Croix de Guerre, Middlesex Hussars Yeomanry, attached to Royal Flying Corps (elected Associate 1889, Fellow 1902, Holder of the Godwin Bursary 1904); Captain Alfred Edward Corbett, Border Regiment, of Manchester (elected Associate 1897); Captain Joseph Berkeley Cubey, 23rd Northumberland Fusiliers, of Newcastle (elected Associate 1908); Lieut. Lawton Stephen Ford, Queen's Royal West Surrey Regiment (Student, son of Mr. Lawton Robert Ford, Associate); 2nd Lieut. Donald Jervis Gordon, Border Regiment (Student, son of the late Mr. Thomas Gordon, Associate); 2nd Lieut. Douglas Morley Griffin, King's Liverpool Regiment, of Liverpool (elected Associate 1914); 2nd Lieut. John Kingston Ground, Royal West Kent Regiment, of Maidstone (elected Associate 1912); 2nd Lieut. Andrew Danskin Aitken, Royal Engineers, of Airdrie (elected Associate 1896); Private Balfour Abercrombie, Black Watch, of Paisley (Licentiate); Lieut. Charles Stonehouse, East Lancs Regiment, of Bolton (elected Associate 1910); Lance-Corporal Edward Woodhouse Stubbs, Royal Army Medical Corps (elected Associate 1910); Corporal Arthur Winch, 15th West Yorks Regiment, of Leeds (elected Associate 1911); 2nd Lieut. Joseph William Bull, Royal Engineers (elected Associate 1914); Capt. Noel Waugh Hadwen, Duke of Wellington's Regiment (elected Associate 1910); Lieut. Alfred Edwin Shapley, Northumberland Fusiliers (Probationer); Private Alfred Edgar Stott, King's Liverpool Regiment (Student); Capt. Percy Cunliffe Pilling, Loyal North Lancashire Regiment (elected Associate 1904, son of Mr. Joseph Pilling, of Bolton, Fellow); 2nd Lieut. Francis Grissell, Coldstream Guards (elected Associate 1913); 2nd Lieut. Philip Edward Webb, Royal Engineers (son of the Past President Sir Aston Webb, Lieut. Webb, who became an Associate in 1912, was elected an Associate Member of Council in 1915); Capt. R. M. Haig Philp, Royal Field Artillery, of Sydney, New South Wales (elected Associate 1914); Capt. Tom Sadler Rushworth, City of London Regiment (son of Mr. Wm. Rushworth, Fellow, of Durham, elected Associate 1913); Private Ernest Scott Petch, 4th Royal Scots, of Scarborough (elected Associate 1909); Lance-Corporal Joseph Henry Taylor, Royal Army Medical Corps (elected Associate 1908); Lieut. Wm. M. Jenkins, Welsh Pioneers (Student); Private Arthur Samuel Bagshawe, West Kent Yeomanry (Student); Private James Ellis Braithwaite, West Yorks Regiment, of Leeds (elected Associate 1906); 2nd Lieut. Alick George Horsnell, Suffolk Regiment (Tite Prizeman 1906, Soane Medallist 1910).

The Hon. Secretary then moved that their deepest regret for the loss of these gallant lives be entered on the Minutes of the Meeting and that a message of sincerest sympathy and condolence be forwarded to their relatives.

The President requested the Meeting to signify their assent to the motion by rising from their seats.

## OBITUARY.

Mr. E. Guy Dawber announced the decease of: James Burgess, C.I.E., LL.D., F.R.S.E., Hon. Associate, elected 1888; Sir James Dromgole Linton, Presi-

dent of the Royal Institute of Painters in Water Colours, Hon. Associate, elected 1897; David Bird, Associate, elected 1889; Edward Thornton, elected Associate 1892, Fellow 1904; Theodore Knolles Green, elected Associate 1861; Charles Rennels Hancock, elected Associate 1882; Richard Phené Spiers, elected Associate 1861, Fellow 1877.

## THE LATE MR. PHENE SPIERS.

Mr. Guy Dawber said of the merits and attainments of Mr. Phené Spiers he did not need to speak in that room. His work and influence as Master of the Royal Academy Architectural School, his special gifts for research, his literary industry, his rare skill as a painter of architectural subjects, are known to us all. A very interesting memoir of Mr. Spiers by Professor Lethaby appears in the current issue of the R.I.B.A. Journal, in which eloquent tribute is paid to his personality and genius. Mr. Spiers served on the Council of the Institute for fifteen years, was for twenty-two years a member of the Literature Committee, and for eleven years its Chairman. He was the author of numerous Papers in the Transactions and a valued contributor to debates. He begged to move "that the Royal Institute do record its high estimate of the valuable and productive labours of its late distinguished Fellow, Richard Phené Spiers, for advancement of architecture, and its grateful appreciation of his eminent services as a Member of Council and of the Literature Standing Committee; and that the Institute do record its sense of sorrow at his loss, and do offer to his near relatives its sympathy and condolence with them in their bereavement."

Professor Beresford Pite supported the vote of condolence to the relatives of the late Mr. Phené Spiers, and spoke of the peculiar relationship in which Mr. Spiers stood with many members of the profession. At the Royal Academy Schools generations of them knew him personally very well. In the remote days when he (Professor Pite) was there, Mr. Phené Spiers, strange as it might seem, belonged to a past tradition. Since then the skies have changed and the horizon altered. The school for which he had the responsibility is practically again the dominant architectural school of this country. Mr. Spiers' qualities partook of the permanent rather than of the ephemeral qualities of architectural studentship. It is to be regretted that he does not leave behind him any important building. For of his ability as an architect those who knew him well had no doubt at all. The fact of his being able to hold himself aloof during the time of the Gothic Revival was itself eloquent of much. He submitted a design, with Mr. C. J. Phipps, for the great church of the Sacré Cœur on Montmartre which would do credit to the best French thought of to-day and be now considered almost fashionable. It should be remembered also that he devoted the bulk of the money collected some years ago as a memorial to himself to the foundation of the Spiers' Collection of Drawings of Ancient Architecture, now at South Kensington. Mr. Spiers was a very important medium between the profession at home and the profession abroad—foreigners would come to conferences in this country in order to meet him. The profession has lost one important channel of communication. His friends had hoped for some recognition of his work from the Royal Academy and for some further recognition from the Royal Institute of British Architects.

The vote of condolence was passed by the members rising in silence from their seats.

## BEQUEST BY THE LATE LIEUT. F. GRISSSELL.

The President announced that Lieut. Francis Grissell, an Associate of the Institute elected in 1913, who, as mentioned above, was killed in the fighting on the Somme on September 15, has bequeathed to the Institute the sum of £500 and expressed the wish that it be used for the benefit of the library.

The following resolution was then carried:—"That the Institute do express to Mr. F. de la Garde Grissell,



the sole executor, its appreciation and thanks for the generous legacy bequeathed to the Institute by Lieut. Francis Grissell and convey to him the assurance that the testator's wishes as to the use for which the legacy should be applied shall be faithfully carried out."

Mr. Ernest Newton then delivered the following

#### PRESIDENTIAL ADDRESS.

Ladies and Gentlemen,—In the ordinary course of events I should at this moment be listening to my successor in office with that peculiar relish which an actor feels when he steps from the stage and, seated amongst the audience, watches the new player sustaining the rôle which had hitherto been his. Circumstances have, however, willed it that my tenure of office should be prolonged, and that, for the third time, I should be addressing you as President.

So far as the ordinary work of the Royal Institute is concerned, the history of the past year has been almost without events. The Council and the Committees have met as usual, and have dealt with the necessary business.

One matter that has engaged our attention has been the resumption by the Commonwealth Government of the competition for the Canberra Parliament House. You will remember that this competition, which was to be international, was postponed at the outbreak of the war; and it is difficult to understand why it should be resumed now, when all the young architects of the Empire and of the Allied countries are engaged in other and sterner duties. We have felt compelled to protest very strongly against the resumption, and have also communicated our views to the two leading French societies. I need not here go into the matter in detail, as you will find the correspondence in the Journal.

The War Committees have been active, and the Civic Survey has continued its most useful work. It is gratifying to know that the small exhibition held by the latter at the Congress of the Sanitary Institute some little time ago created great interest, and it is hoped that a more complete exhibition may be held in our own rooms early next year.

Our anxieties as to the future have, of course, not been lessened by the action which the Government was compelled to take last July in issuing an Order in Council controlling private building for a time, in order not only to keep steel for the purposes of the war, but to secure building labour for urgent work in connection with munition buildings and other vitally necessary national undertakings. It was necessary, too, to relieve the railways as far as possible from the carriage of building materials. The Ministry of Munitions, which has the carrying out of this difficult and delicate task, realises the effect of this control on all those connected with the great industry of building; and, without being indiscreet, I may say that its attitude is most sympathetic. Every effort is made to adjust the conflicting claims of individuals and the State; but, of course, the State has, and must have, the first claim. By the adoption of a system of inspection it has been possible to ensure that no building in course of erection is stopped arbitrarily and without due regard being given to its protection and security. In many cases it has been found possible to continue the work until enough has been done to enable the building to be made use of. In other cases, where the structure was nearing completion, it has been found possible to roof it and to finish the interior, as, for the moment at any rate, it is only certain classes of labour that are required for State purposes.

I should like to enlarge on this subject, but, for reasons which I think you will readily understand and appreciate, I feel that it is better to avoid going very closely into details. I can, however, assure you that every case is gone into carefully and examined from every point of view, and that it is of value to have these cases considered from the technical standpoint. The staff is composed of architects accustomed to deal with buildings of every kind, and every effort is made to administer the Order with scrupulous fairness. It is perhaps hardly necessary for me

to tell you that this work is not done in the traditional office hours of 10 to 4 with a two-hour lunch interval. It would be comforting to be able to give some idea of the duration of this control; but, although I am sure it will be relaxed at the first possible moment, no one can forecast future developments.

You will have noticed, no doubt, that the Ministry, through the Press, has made the thoughtful and timely suggestion that the public would do well to take advantage of the lull in building operations to get plans prepared now for future schemes. If this advice is followed generally it will help architects to tide over this difficult period, and we must hope that the *diminuendo* will be followed by a *crescendo* and a long *forte fortissimo* passage.

It cannot, however, be denied that the outlook for architects at the present moment is not very brilliant, but at a time like this everyone can do something; and if there is little or no architectural work to be done we can do a thousand-and-one other things. Our training tends to make us versatile. We already have some architects making shells and aeroplanes, others making explosives, and some even navigating barges for the carriage of munitions. There is man's work to do in many directions—in offices, on the land, everywhere. The work of hundreds of supposed "indispensable" young men can be done, and done well, by architects of intelligence and ability. Our practice obliges us to have an insight into everybody's business. We have made a large contribution of our young men to the Army, and we old ones are not going to sit still and bewail our fate just because for the moment there is no market for our special "line." If our young men can serve in the ranks, we can serve in the ranks too—not in the trenches, but in offices, factories, anywhere where our work is wanted, and where we can release a young man to take his place in the fighting line.

Almost since the war began, certainly from the first winter, our newspapers have been full of paragraphs, cunningly disseminated by Germany and innocently printed by the British Press, stating that Germany was so short of men that she was driven to take the halt, the blind, and the maimed into the Army. Then accounts of food riots, mutinies, loss of *moral*, follow each other at discreet intervals. All these crafty tricks are intended to cause a slackening of effort here, and they have not been entirely without result. I think no one who follows events intelligently can have any doubt about the future if only we realise that *now* is the time not for slackening for an instant, but for a supreme effort. We have to put every ounce into the scale. Everyone must do something or suffer something. There are a thousand ways of losing, but only one way of winning, and the one way is to concentrate all our energies on the war, to will victory and to work for it, to realise that the power of Germany is only beginning to be broken, and that the victorious end will come about not only by the valour of our Navy and Army, but by the work of every man and woman in the country.

Although I have said our one duty is to concentrate all our efforts on the prosecution of the war to a victorious end, that does not mean that we should not think of wise plans for the future. This can be our recreation. I have a shrewd notion, however, that whatever schemes we may work out, our future will be determined for us by the men who have done the fighting. We read perhaps a little too much of plans for "trade after the war." Too much thought and energy are being put into these schemes for a future over which we have no control. It is to be hoped, however, that in these vast commercial projects the claims of the workers, now the fighters, are not overlooked. It will be a disgrace to us as a nation if after the war we are content to let them live in the drab and dreary districts which many people seem to look upon as the inevitable type of district for a working population. In London alone we have square miles to destroy and replan. Our people must not only have the same pleasant surroundings which we consider indispensable for ourselves, but they must earn enough

and have leisure enough to enable them to enjoy life. The amount spent on the war in one week would be enough to sweep away many of these dreary neighbourhoods and replace them by cheerful streets and squares of pleasant and comely houses.

When once the citizens of London begin to realise the disgrace of squalor and ugliness the architect will come into his own again. It is not only the outlying districts that cry aloud for change. We have a glaring example in the very centre of London, and, thanks mainly to the untiring energy of Sir Aston Webb and the London Society, we seem within measurable distance of carrying out a great scheme for sweeping away Charing Cross railway bridge and replacing it with a fine road bridge worthy of our great city. It is a most hopeful sign that Parliament, which still reflects public opinion, is on the side of the improvers. Possibly the number of those who care much for a beautiful city is small, but if the rest of the community can at any rate be brought to see that there is a commercial value in architecture, and that it pays to have a fine city with great streets and squares and fine bridges, the money difficulty, which is the rock on which so many schemes have suffered shipwreck, will be negotiated safely. The series of articles in the "Observer," by Sir Aston Webb, Mr. Reginald Blomfield, and Mr. John Burns, will help immensely to attract public attention to the subject and to give an air of reality and nearness of realisation to a project which has been discussed for several years. It is hardly necessary to say that the Institute gives its complete and unreserved support to a scheme for effecting so great an improvement.

Other great projects will have to be taken in hand after the war, and we can console ourselves during the lean time of the present by dreaming dreams of the great things we are to do in the future. If the war is to lead to a change in the surroundings of the workers, it is clear, too, that there will be changes in the methods of work. The trade unions, for the purposes of the war, have given up their "customs" on the distinct pledge that after the war they shall be at liberty to resume them. I know very little at first hand about these customs, but I have been told that so far as the building trade is concerned they are based on the assumption that limiting the amount of a man's output is the only way to make the work go round so that each man may have a share, the idea being that there is a certain average amount of work per annum and an ascertained number of men to do it. I believe this to be quite unsound. Limiting the amount of work a man can reasonably do not only keeps skilled men at the level of less skilled, but makes building cost more, so that less is done. Many, many years ago I suggested a system of two classes of workers. The more skilled or first class were to work quite unfettered and to receive higher wages; the second class, also unfettered, would receive less. The incentive for the second-class man to improve himself so as to be promoted to the first class would be great. The result would be more output, better-paid work, and a levelling up instead of down. This was a very juvenile effort on my part, and I am not even sure that it was original, but I still believe it has the germs of soundness, and that the trades unions, with their fine organisation, could do something on these lines.

Other changes and other reorganisations must also be taken in hand if we ever again have to cope with a situation which requires the whole organised strength and skill of the community. We have at the present moment completely organised societies, institutes, and associations of architects, engineers, and of scientific men of all kinds, but they are all isolated links with nothing to bind them into a chain. If, instead of this isolation, all these societies were linked together as part of a State organisation ready for use in a case of emergency, the Government would have ready to hand the whole machinery of these organisations and could put their hands on the men they wanted and get all the information they required in a few hours. Suppose that this

organisation had been in existence when war broke out. Representatives of all these bodies would have been summoned. The Institute would have been entrusted with work proper to architects. Engineers would have been allocated their work, chemists theirs, and all without waste, overlapping, or confusion, because the machinery was already in working order.

The amount of help that the civil organisations could give to the Government is incalculable; I cannot, of course, speak for other bodies, nor do I know to what extent their organisation was made use of, but, so far as the Institute is concerned, I can say that we were ready directly the war broke out, and that not only then, but more than once later the whole of our machinery was placed at the disposal of the Government, and I have no hesitation in saying that had we been made use of many delays and mistakes would have been avoided and much expense saved. I have lately had the duty of examining vast numbers of plans which have ranged from cottages to factories covering acres; every type of construction is represented, proving, if proof were required, that we have men competent to design and carry out on proper business and economical lines every known type of building.

Although we properly regret that so little use has been made of us as an organised body, and are inclined to blame the authorities for their shortsightedness, we must remember that, because of the lack of touch which I have before referred to, we were strangers to the Government, and, after all, Governments are like individuals, and have a dread of the unknown. It is always so much easier to go along the well-known tracks. We all have our favourite builders, to whom we like to entrust our work, and view a strange contractor with disquiet until he, in his turn, has proved his worth. It was then natural perhaps, though regrettable, that when the emergency arose the unknown path was avoided. It must be part of our work in the future to forge the connecting link so that if ever again a like emergency should arise we should find ourselves called upon and ready to place our skill and experience at the service of the State.

As is perhaps natural, I fear I have so far considered the war mainly as it affects us as architects, but although as islanders, whose country so far has been free from the invader, it is a little difficult to imagine what it must mean to those countries where the actual fighting is going on, we must not think only of our own sorrows and tragedies. Think how Belgium has suffered, and of the woes of our great ally, France, dear to us architects; and of Russia, the mysterious, which is being freed and regenerated by the blood of her sons; and of Italy, whose very name warms our hearts; of Serbia and Roumania—all have suffered, and are suffering even more than we are, and are giving up all present happiness now, so that future generations shall be free and at peace.

I cannot conclude without expressing my most heartfelt sympathy with those who have been bereaved. Their sorrow will be mingled with pride at the thought that their dear ones have given their lives for their country. All of us whose sons are serving live in constant anxiety, and we can only hope that the great sacrifices that we are called upon to make may bear fruit, and that the discipline and sorrow of the present may make us a strong and earnest race to carry on the work of the world in the future.

#### VOTE OF THANKS.

Professor Beresford Pite proposed the vote of thanks to the President, and said that the note which Mr. Newton had struck again that day, a note of dignity and hearty patriotism, was one which the Institute warmly welcomed. Their gratitude was due to the President for the earnest and constant attention which he had given to the primary requirements of the nation from the professional standpoint. The Australian Parliament House competition, to which allusion has been made, opened up a very difficult question. It was obviously impossible for the architects of the allied nations to give to it at present the attention which they

would wish to do. On the other hand, the Australian Government doubtless wished to be able to commence those buildings as soon as the war is over and thousands of men return and demand employment. To go on with the competition seemed like giving the job away to neutrals or to the enemy. He suggested that they should urge the authorities to abandon the competition and to give the commission to an architect qualified to carry out such a work. At home architects were getting reconciled to smaller incomes and they were not likely to get for some time an opportunity for altering that reduced scale. He would suggest that the Institute should lower the Fellows' fees to the level of the Associates'. Under present conditions it is important that the Institute should have a policy of professional concentration. Some such scheme might be prepared during the present pause in business, so that professional men could be able to economise their subscriptions and the Institute strengthen its resources. Some bodies must have suffered very much more than the Institute. For instance, a hand might be held out to the Architectural Association. If the Institute could concentrate on a policy of public action, uniting itself to other bodies, there would be a future for it of great usefulness and public importance. A century ago, during the Great War, was a great time of activity with architectural students, and they were engaged on most important work. That war killed the old English traditions and stopped the architectural clock. The Greek Revival culminated and came to these shores. What is in store for this country they did not know; but there will be greater effects from the present war than from that of a hundred years ago. He would ask each architect to obtain an intelligent critical ideal of his own scope and to connect his work with the real necessities of the large population in which he lives, so that the profession may come out of this period of stress with an intention of making their art representative of the great race of which they form part and of the great era in which they live.

Capt. R. Burns-Dick (President of the Northern Architectural Association) seconded the vote of thanks. At times, he said, those who left their profession to enter the Army got a feeling as to whether architecture mattered, whether anything mattered, so long as the destinies of the race hung in the balance. At the same time they had to remind themselves that the present war was not the end of all things. The war was going to bring greater freedom. The people of this country were working out their own salvation on the battlefield.

Professor W. R. Lethaby suggested that the Institute wanted some sort of simple interim work so that the members might be brought together from time to time. Would it not be possible to hold some sort of informal conferences with the hope and intention of doing something towards putting an end to the internal anarchy from which they were suffering? For instance, they might consider the city as a whole from the point of view of architectural design and that individual unity which goes to make up a fine city. They would not perhaps achieve much in direct conflict with style ideas, but much might be done by going round that conflict. If architects would go down some of the main London thoroughfares in groups and regard the various fronts, they would see that something in the direction of greater unity must be done. Then the profession ought to join in other civic efforts—such as a mitigation of the advertisement plague in London, which at present amounted to a business blackguardism possible in no other town. If such things went on, the profession would not survive. Again, he would like them to discuss the possibility of reviving the office of Surveyor-General.

#### THE G. E. STREET COLLECTION OF DRAWINGS.

Mr. Ernest Newton, before closing the meeting, called attention to the interesting exhibit on the walls of competition drawings and designs and working drawings of ecclesiastical buildings carried out by the late George Edmund Street, R.A. They represent a selection

of a numerous collection of drawings of Street's works, which have been presented to the Institute by his son, their esteemed Fellow, Mr. Arthur Edmund Street.

#### ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A GENERAL MEETING of the members of the Royal Institute of the Architects of Ireland was held at the Institute Rooms, 31 South Frederick Street, Dublin. Owing to the unavoidable absence of the President, Mr. W. Kaye-Parry, B.A., F.R.I.B.A., occupied the chair, and there were also present:—

Messrs. A. E. Murray, W. G. Clayton, C. J. MacCarthy, R. O'Brien Smyth, Edwin Bradbury, C. A. Owen, Lucius O'Callaghan, J. J. Higginbotham, Harry Allberry, Thomas A. Coleman, James H. Webb, R. M. Butler, G. L. O'Connor, and Frederick Hayes (Hon. Secretary).

A discussion took place as to the best means of improving the artistic quality and utility of Irish building materials. Most of the members present having given their views on the matter in question, the following resolution was passed:—

"That this Institute, recognising the great importance of the use of native materials in the construction and equipment of Irish buildings, requests the Council to take steps to form a small committee of four architects interested in the subject, and to invite the Council of the Dublin Industrial Development Association to nominate a like number of their members interested in this subject, to form a Joint Committee to inquire into and make recommendations in relation to the matter. That the Joint Committee be asked to consider the question generally, both in its practical and aesthetic aspects, and to advise—(a) What steps can be taken to develop and encourage the use of such materials; (b) to tabulate a comprehensive list of quarry-owners, manufacturers, artists, and craftsmen; (c) to advise by what means architects and builders may be brought into closer touch with them; (d) to ascertain whether such manufacturers and others can more closely study and provide for the special requirements of architects."

#### VICTORIA AND ALBERT MUSEUM.

AN exhibition of copies of English ecclesiastical mural decoration of the Twelfth to the Sixteenth Century has been arranged in Room 72 of the Victoria and Albert Museum. These copies, which have been painted in water-colour by Mr. E. W. Tristram during the last nine years, have recently been acquired for the Museum, where it is purposed to form an extensive collection of representations of this once popular branch of our native art.

As is well known, from Norman times until the Reformation English churches were filled with paintings which depicted themes inspiring to the popular mind, such as scenes from the life of Christ, the legends of favourite saints, and occasional secular subjects from which a moral could be drawn. At the Reformation the paintings were obliterated by coats of whitewash, and many were destroyed. The process of removing the whitewash, chiefly during the nineteenth century, has in numerous cases revealed the paintings irreparably damaged, and liable to perish when again exposed to light.

Some of the paintings have already disappeared since the copies now exhibited were made. This fact shows how necessary and urgent it is that a great national collection of copies of these paintings should be formed to preserve an adequate record of this great activity in our early English art.

The copies exhibited comprise a set of the Westminster Abbey paintings, including the series from the Judgment which adorned the east wall of the Chapter House, the Sedilia paintings, and an exquisite fragment from a panel of the altar retable now in the Jerusalem Chamber,



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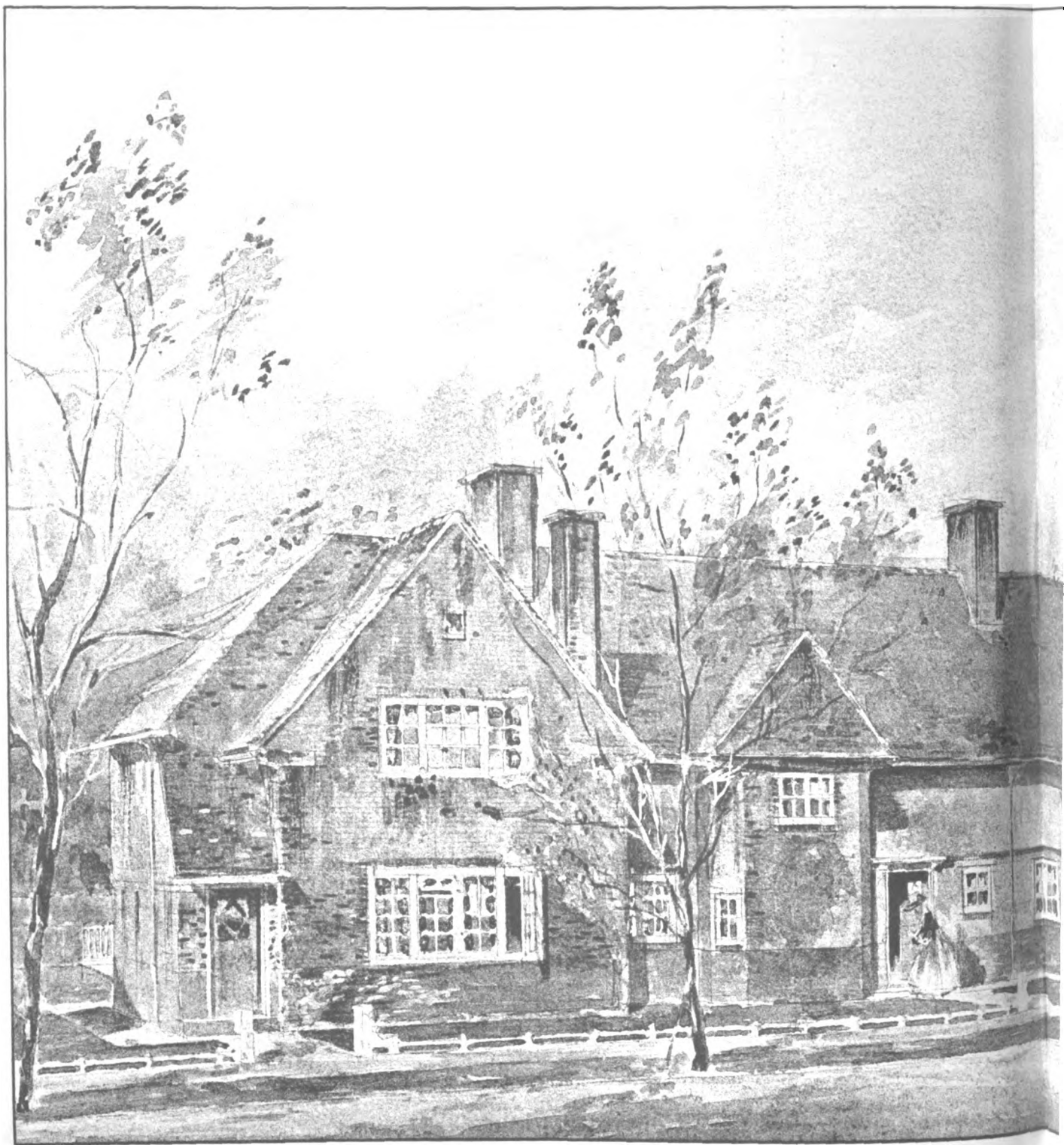
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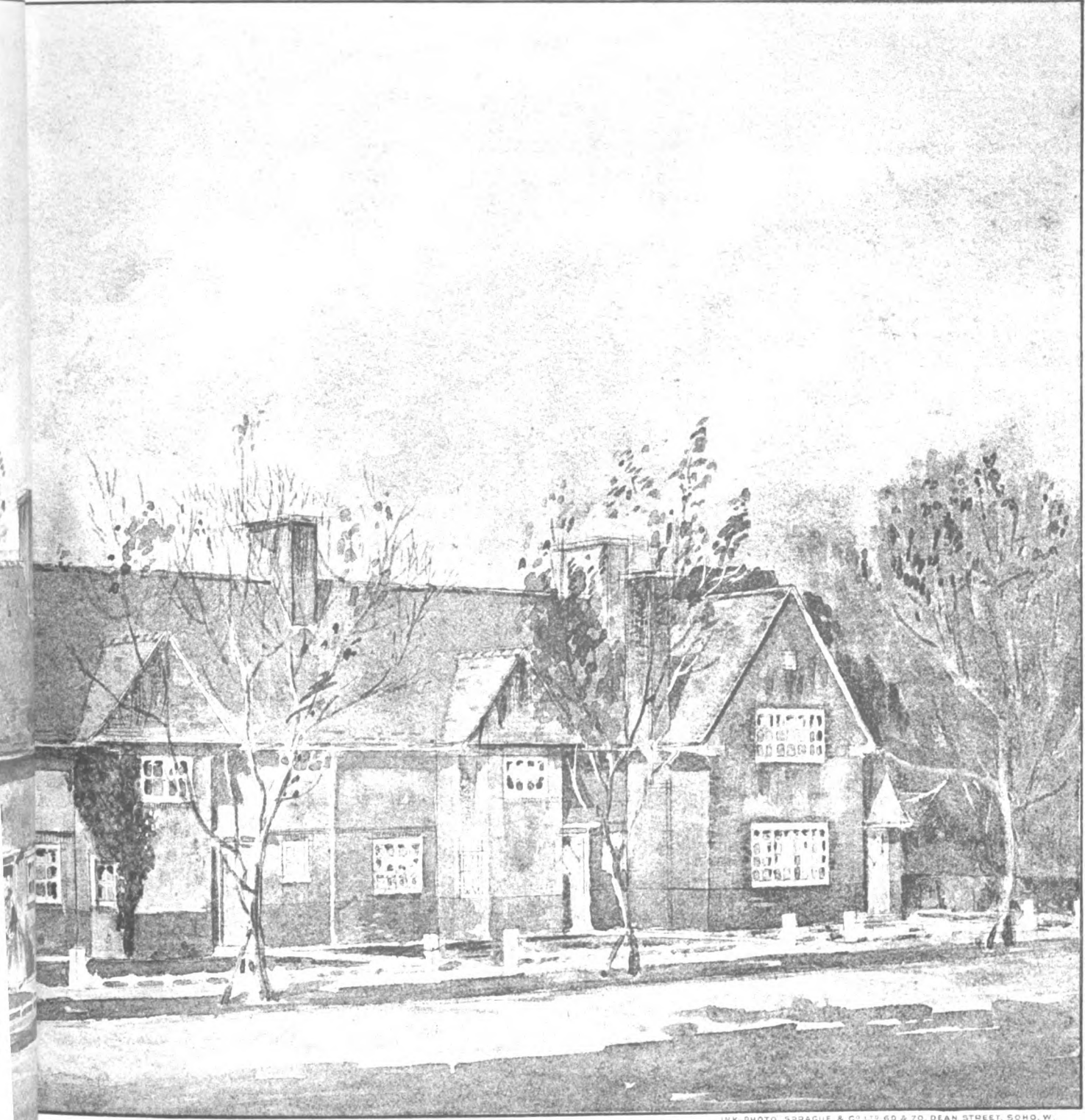




(Royal Academy Exhibition, 1916.)

GROUP OF FIVE COTTAGES, BROOKLYN  
MESSRS. HALLIDAY, PATTERSON & CO.

Nov 10th 1916.

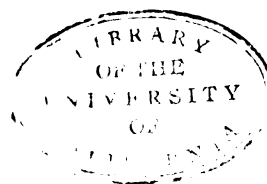


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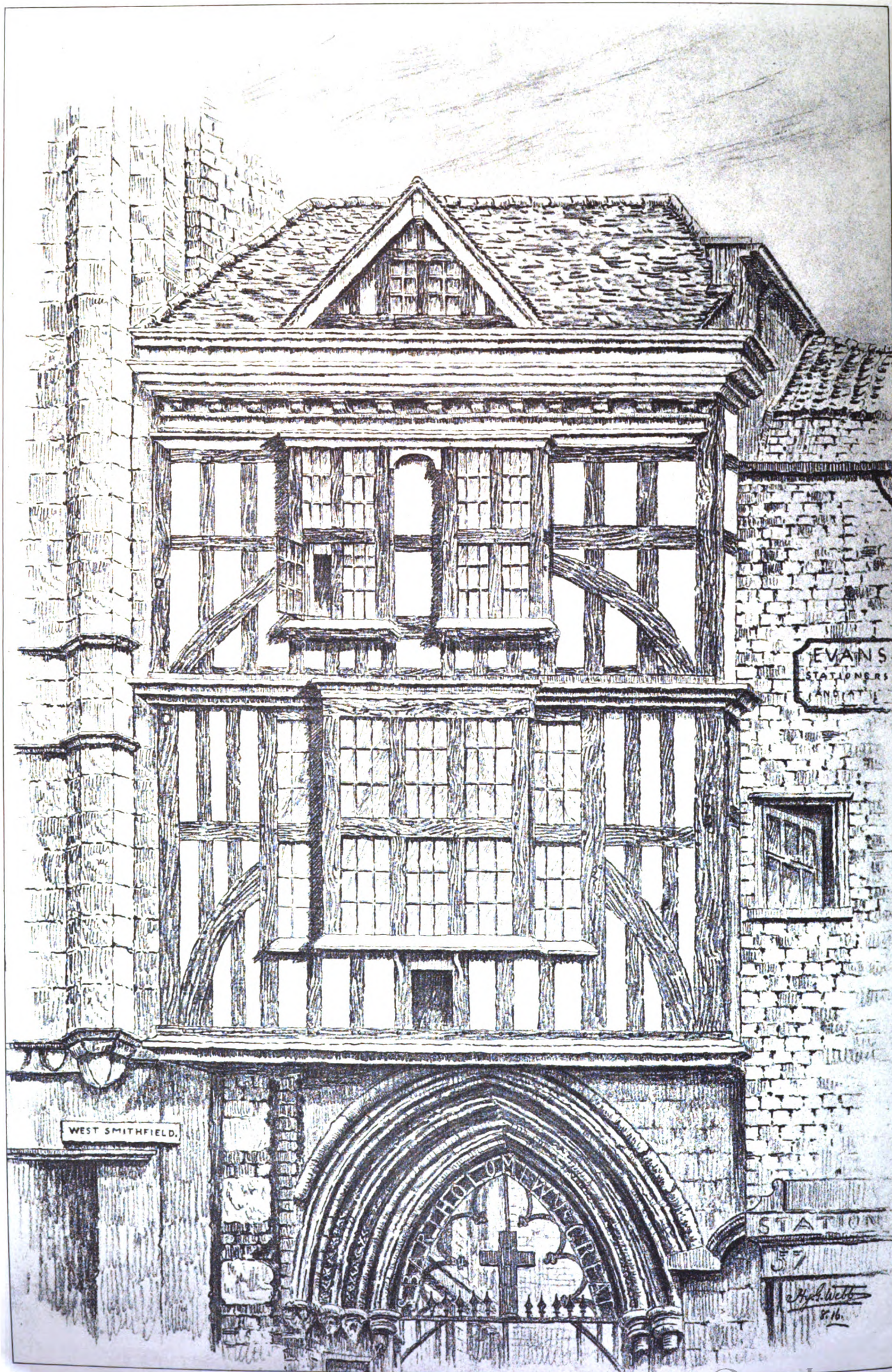
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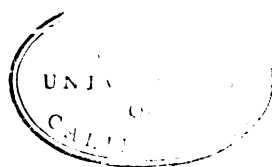
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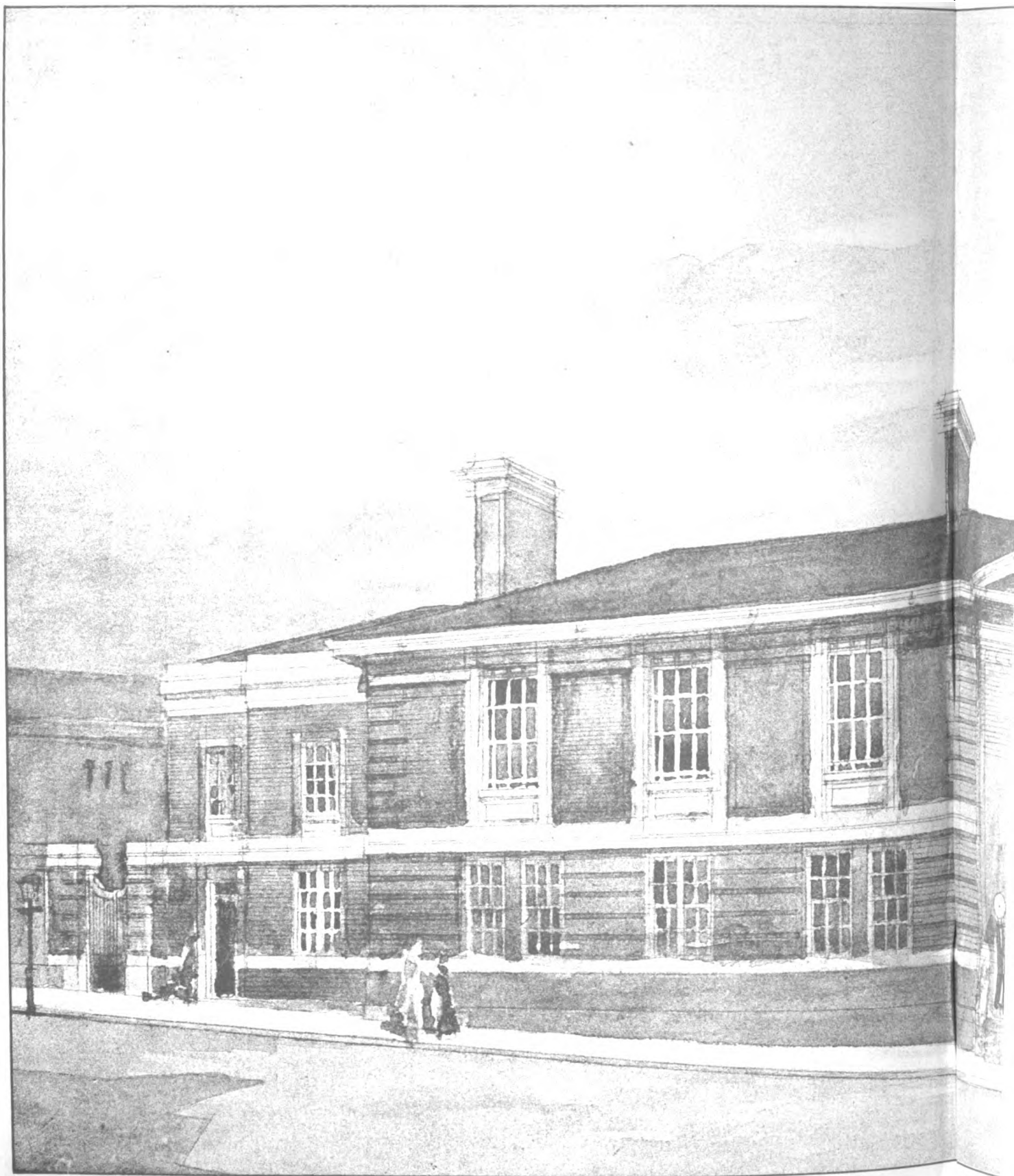
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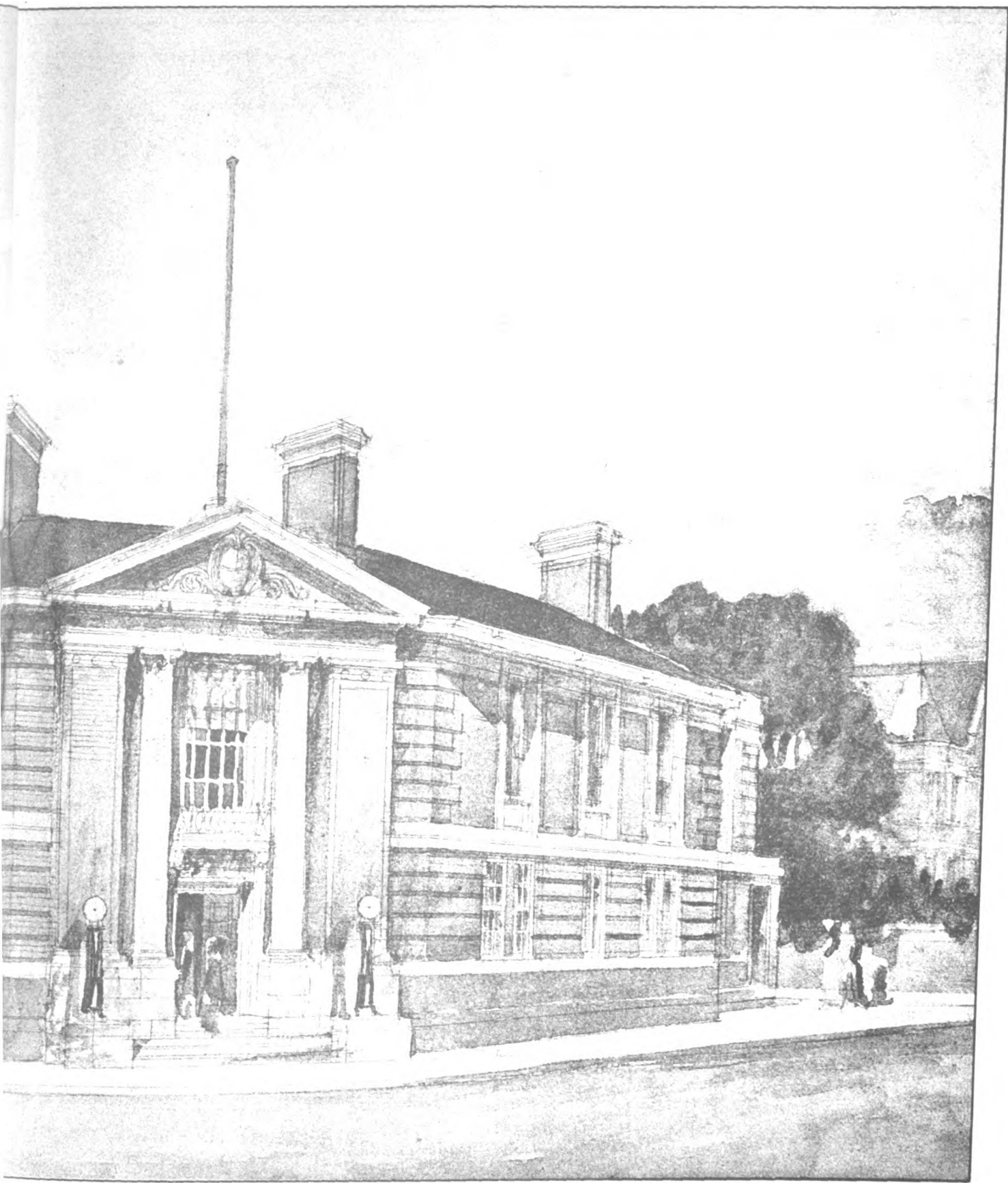




(Royal Academy Exhibition, 1916.)

WILMSLOW TOWN HALL, 1 PREMIA  
MR. J. THEO HALL, 24 ARCADE

Nov. 10th 1916.

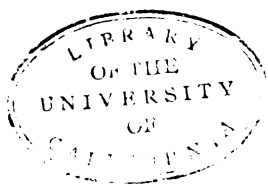


INK-PHOTO SPRAGUE & CO LTD 69 & 70, DEAN STREET, SOHO, W.

T PREMIATED DESIGN.  
R.I.B.A., Architect.

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depicting the Miracle of the Loaves and Fishes. St. Albans is represented in the series of Crucifixions and Madonnas which are painted on the Norman piers in the nave; York by three fine paintings from the old wooden vaulting originally in the Chapter House, but now removed; and there are, among others, paintings from Chichester, Ely, Norwich, and Winchester—altogether about a hundred examples.

### SURVEYORS' RESPONSIBILITY FOR ARCHITECTURAL WORK.

POINTS of considerable interest and importance to surveyors and architects were raised in a case which was decided by Lord Justices Swinfen Eady and Bankes and Mr. Justice A. T. Lawrence in the Court of Appeal on Monday. The case arose on an appeal from a judgment of Mr. Justice Rowlatt, before whom, it appeared, Mr. Arthur E. Northcote, architect, of Tothill Street, Westminster, brought an action against Messrs. Minister & Co., Ltd., fashion-plate printers, of Westminster, to recover certain professional fees for work done in 1913. Messrs. Minister counter-claimed for damages for negligence in the preparation of plans by Mr. Northcote and Mr. Samuel Nixon, surveyor, of Victoria Street, S.W. Mr. Justice Rowlatt found that Mr. Northcote was entitled to certain fees, but gave judgment against him for £375, damages arising out of action taken by the trustees of Roman Catholic schools adjacent in regard to ancient lights. At the same time his lordship gave judgment in favour of Mr. Nixon, with costs, and against that particular decision Messrs. Minister now appealed.

Mr. Holman Gregory, K.C., and Mr. A. Neilson were counsel for appellants, while Mr. Hollis Walker, K.C., and Mr. Woodgate appeared for Mr. Nixon.

Lord Justice Swinfen Eady, in delivering judgment, said the facts of the case were extremely simple. The appellants were desirous of acquiring two sites in Poland Street, W., and of rebuilding. Mr. Nixon assisted in the negotiations leading up to the acquisition of the sites upon building leases. During the negotiations, and when it was obvious that, at all events, one building site would be acquired, a question arose with regard to the employment of an architect, and Mr. Nixon wrote a letter upon which much discussion had turned. Mr. Nixon wrote to the appellants that their managing director had said they had no architect, and under those circumstances he ventured to ask them to employ his cousin—Mr. Northcote. "We often work together," the letter proceeded, "and although this is a building I could easily put up myself alone, you might probably have more confidence in a member of the Institute of British Architects, and he would charge no more than I should. We should, however, share the work, and you would have the advantage of my being on the spot, and continually supervising the building from day to day, as it proceeds, in conjunction with him." In reply to the letter the appellants wrote: "Thanks for your favour of the 17th inst. We shall be pleased to entrust your cousin with the architectural work." A few days after there was an interview between Mr. Northcote and Mr. Nixon, in reference to which Mr. Northcote made this entry in his diary: "Called on Mr. Nixon, by appointment, at 12 noon, and he invited me to share with him the rebuilding of the two houses 55 and 56 Poland Street on mutual terms (i.e. halving the total fees). I readily consented, and we then viewed the premises from the street. . . ." On the basis of the letter sent by Mr. Nixon, Mr. Northcote was subsequently appointed to prepare the plans. The question was what was the true position between the parties. In the opinion of the Lord Justice, the true position was that appellants retained Mr. Northcote as their architect, and it was a separate retainer, but there was a further agreement, directly entered into between Messrs. Minister and Mr. Nixon, that as between them, in consideration of appellants employing Mr. Northcote as their architect at Mr. Nixon's request, Mr. Nixon would share the work

with Mr. Northcote, and that they should have the advantage of him being on the spot continually supervising the building. In the Lord Justice's opinion, Mr. Nixon was liable to the appellants upon an agreement for value to share the work with Mr. Northcote; if that was so, it seemed to him that the other consequences would follow. Upon the evidence the Judge came to the conclusion that negligence against Mr. Northcote was established, and upon the evidence the Lord Justice could see no reason in that respect for drawing a distinction between Mr. Northcote and Mr. Nixon. The view that Mr. Nixon took with regard to No. 56 Poland Street was that the height of the building, as originally proposed, did not occasion any actionable obstruction to the ancient lights of the Roman Catholic schools. Mr. Nixon wrote that he and Mr. Northcote both shared that view. Ultimately the trustees of the schools brought an action, and the result was that it was settled, and the intended new building was substantially altered. The learned Judge had found that the compromise of that action was reasonable and proper on the evidence before him. In the circumstances the Lord Justice thought the appeal ought to be allowed, and judgment entered for the appellants against Mr. Nixon.

Lord Justice Bankes, in expressing agreement, said it appeared to him that Mr. Nixon was willing to accept the responsibility of work done by his relative in the preparation of plans.

Mr. Justice Lawrence concurred, and the appeal was allowed, with costs in this Court and the Court below.

Lord Justice Swinfen Eady said he understood that the amount of damages had been already paid.

Mr. Hollis Walker: That is so, my lord. They have been already paid by Mr. Northcote.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

### Charing Cross Bridge.

SIR,—Your leading article in your last week's issue is just the sort of article that might be expected in a paper such as "The Architect," and, from your standpoint, perfectly reasonable. But let us leave out the question of the workman's ticket, and come to the much more important question of the other working man, the business man; in fact, without a doubt the architectural profession as represented by two of its leaders, Sir Aston Webb and Mr. Reginald Blomfield, are fully qualified and entitled to refer to the present erection despairingly, but architecture, I submit, must after all take the second place to public convenience, and the retention of Charing Cross Station, I submit, is imperative. All who have any experience in these matters must know that there is a very decided objection to crossing the bridges, and districts served by the London, Brighton, and South Coast Railway, for instance, are constantly tabooed because of the fact that the prospective tenant will not entertain the purchase or tenancy because of the objection; and, after all, I take it that the large body of the architectural profession will be wise to consider such a point. How much better employed Sir Aston and Mr. Blomfield might be in preparing some sketch-scheme of how a really handsome bridge might be prepared, which would be to the public good, and not looked at from a purely selfish position! Probably both these gentlemen and you, Sir, swing across the bridge in your luxurious motor, but you might try the effect on a wet night of standing waiting for a motor omnibus, with its attendant discomforts when you are fortunate enough to get into it, and the fact that on arrival at your station you find your train has gone, and for the next thirty or more minutes you have to stand

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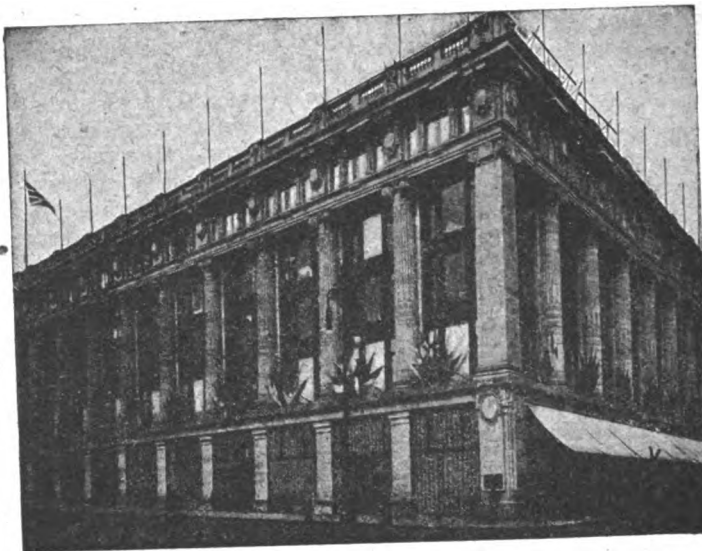


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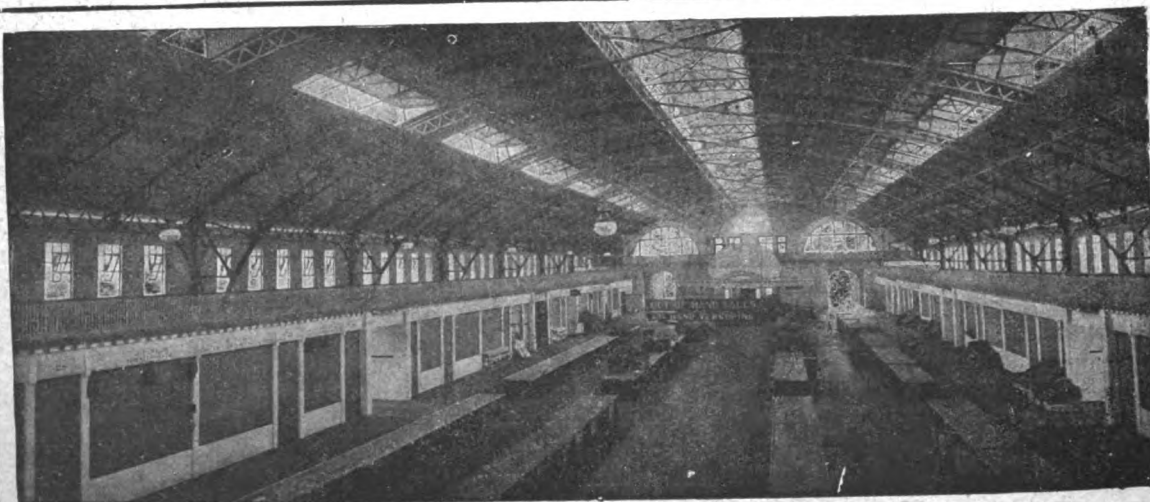
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about a draughty station cursing the district you live in, the railway company which carries you to your destination, and, above all, the fact that the company in question is situated on the south side of the river. Under these circumstances what do you think the general public cares about architecture? and the writer can also plead guilty to such a feeling at the time of penning this letter.

—Yours, &c.,

A READER OF "THE ARCHITECT"

FOR THIRTY YEARS.

P.S.—Have we no architects or engineers left who can design bridges? Your illustrations of September 29 would surely go to disprove this!

SIR.—Both the public and the shareholders of the South Eastern and Chatham Railway are to be congratulated on the firm stand taken by the Directors against the regrettable action of the House of Commons in throwing out the Bill for the strengthening of the Charing Cross Bridge.

Mr. Cosmo Bonsor and his colleagues have not only a good case, but fortunately also the vigour which comes from close contact with their source of life, namely, the shareholders on whose behalf they act. The present House of Commons has a bad case, and in addition the weakness that comes from lack of contact between the members and their constituents.

The immediate and urgent questions are the safety of the bridge and the using of it to its greatest possible capacity. Mr. Bonsor is right in refusing to be drawn, in this connection, into the discussion about the removal of the railway station to what has been described as "the purlieus of Lambeth." He must not therefore be considered as opposed to such removal any more than, in advocating the making safe of the present bridge, I am in favour of keeping it in being for any long period.

At the present time it is the duty of all to give definite and unreserved support to the Railway Company, for it would be a reflection on our common-sense as a people if we allow a bridge in the centre of the metropolis to become derelict because in the near or distant future a better bridge will have to take its place.—Yours, &c.

MARK H. JUDGE, A.R.I.B.A.

7 Pall Mall, London, November 6, 1916.

#### The Dangers of Hasty Burials.

SIR,—I think the following, quoted from a valuable work on premature burial, will be interesting in face of Mr. Williamson's letter (see "The Architect," August 25):—

"Early burials are advocated and defended by certain writers on sanitary grounds, and there is, no doubt, something to be said for them, provided the body shows unmistakable signs of dissolution. I have not unfrequently seen in the course of my professional duties, when visiting the houses of the poor, a corpse placed in its coffin in a corner of a tiny sitting-room of a four-chambered hovel in a city slum, where the family were having their meals, and all day a stream of neighbours would be calling to gaze upon the gruesome spectacle. It might be urged that such instances demanded, in the name of decency, that speedy burial should be enforced, but do not such weird conditions rather call for a waiting mortuary, to which the body could be removed until unmistakable signs of death set in? To impose a general rule of speedy burial upon Englishmen by Parliament, and upon Americans by State Legislature, as has been urged, would but add to the existing evil of perfunctory and mistaken diagnosis of death, and greatly increase the number of premature interments.

"The Romans kept the bodies of the dead a week before burial, lest in haste they should inter them while life remained."—Yours, &c., E. L.

MR. M. C. G. DAWKINS, formerly director of the British school at Athens, has been re-elected to a Senior Fellowship at Emmanuel College, Cambridge.

## BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

### ENGLAND.

#### CHESHIRE.

*Stockport*.—Premises, Chestergate and Wood Street: alterations for the Industrial and Equitable Co-operative Society, Ltd.

#### DURHAM.

*Hebburn*.—St. Aloysius' Church: proposed Lady Chapel.

*Hurworth*.—Premises: extension for the Hurworth Place Co-operative Society.

#### ESSEX.

*West Ham*.—The "Black Lion" p.h., Plaistow: alterations.

#### KENT.

*Chatham*.—No. 30 Military Road: additions for Mr. W. Tomlin.

*Maidstone*.—Works: addition for Messrs. Tilling-Stevens.

*Rochester*.—No. 3 Victoria Street: addition for Mr. J. Wills.

#### LANCASHIRE.

*Blackpool*.—Three houses, Brooklyn Avenue, for Mr. E. B. Dennis.

Buildings, Princess Street, for the Electricity Committee.

Workshop, Gorton Street, for Mr. M. H. Shepherd.

*Rochdale*.—The Waifs and Strays Home, Castlemere Street: addition.

Brotherod Mill: extension for Messrs. Holt & Ogden.

Addition, Mellor Street, for Messrs. Davey, Kenyon & Co.

Works, Lomax Street: extension for the Prospect Engineering Company.

Workshop, Caldershaw Lane, for Mr. J. H. Heap.

Works, Boundary Street: additions for the Em-press Slipper Works Company, Ltd.

#### MIDDLESEX.

*Edmonton*.—Jewish Cemetery, Montagu Road: mortuary, chapel, and hall.

Factory for Aerators, Ltd.

Additions for the Vegetable Oil Extraction Comp., Ltd.

#### YORKSHIRE.

*Haworth*.—Holy Trinity Church: parish room.

*Hebden Bridge*.—Birchcliffe Baptist Church: proposed new school.

### WALES.

*Brecon*.—Priory Church: proposed restoration (£3,500).

*Cardiff*.—City Hospital: chapel and maternity ward.

### SCOTLAND.

*Aberdeen*.—Premises, Crombie Place, for Messrs. William Fiddes & Son, Ltd.: addition. Mr. John Rust, architect.

Donside Paper Mills: addition. Messrs. Jenkins & Marr, architects, 16 Bridge Street.

*Dumbarton*.—Sawmill, Sandpoint, for Messrs. McLaren Brothers.

*Newton Grange*.—Public-house: alterations for Mr. W. L. Walker.

Business premises: alteration for Mr. Thomas Hackett.





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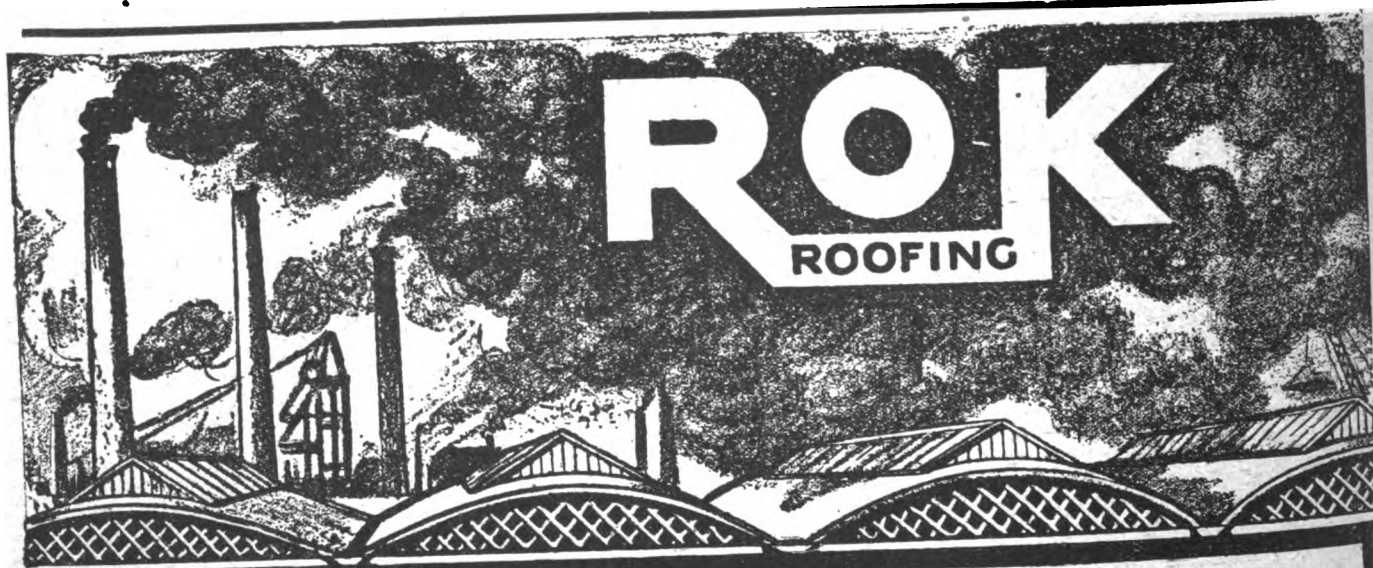
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# THE ARCHITECT

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## FORTHCOMING EVENTS.

Friday, November 17.

Egypt Exploration Fund: Paper entitled "The Future of Græco-Roman Work in Egypt," by Dr. B. P. Grenfell, at

the Rooms of the Royal Society, Burlington House, W., at 4 P.M.

Tuesday, November 21.

Arts and Crafts Exhibition Society: Discussion on "The Workshop in Education," at the Royal Academy, Sir W. J. Collins, M.D., D.L., in the chair, at 3.30 P.M.

University College, Gower Street, W.C.: The third of six public lectures on "The Town Planning of Greater London after the War," by Professor S. D. Adshead, M.A., F.R.I.B.A., at 5.30 P.M.

Institution of Civil Engineers: Paper entitled "Keadby Bridge," by Mr. J. B. Ball, M.Inst.C.E., at 5 P.M.

Thursday, November 23.

Concrete Institute: Presidential Address by Mr. F. E. Wentworth-Shields, M.Inst.C.E., at 5.30 P.M.

L.C.C. Central School of Arts and Crafts, Southampton Row, W.C.: University Extension Lecture VIII. on English Architecture: "The Monasteries of the Different Orders, Typical Cathedrals, Parish Churches, Chapels," by Mr. Banister Fletcher, F.R.I.B.A., at 6 P.M.

## THE ARTS AND CRAFTS EXHIBITION.—II.

IN any criticism of the productions of those whose work is acceptable by the Arts and Crafts Exhibition Society it must be acknowledged as a fundamental principle that no reference to any criterion founded on precedent or convention is admissible. Not that the Arts and Crafts exponents are free from convention; far from it. The border of chequer-work is almost as much a fetish to the modernist as egg-and-tongue to the classicist or stop-chamfers to the mid-Victorian mediævalist.

It is, therefore, no valid criticism of any architectural or decorative treatment in the exhibition that it is not referable to any particular style or period, and cannot be gauged by the accuracy or otherwise with which it follows the precedent of a prototype. It is, however, impossible, however much effort may be consciously made, to avoid all reminiscence of the work of the past, and, so far as the present exponents are concerned, it must be recognised that, consciously or unconsciously, there is an atmosphere of mediævalism in the modernity of the Arts and Crafts movement, not untinted by the influence of proto-mediæval romanesque.

Hence, perhaps, it is that the "Ecclesiastic" centre is, as we said last week, the greatest success of the exhibition. Despite the efforts of ardent exponents to give a classical or byzantine setting to modern ecclesiastical work, there is, in this country at any rate, a traditional association between the fabric of the church and mediævalism that is hard to eradicate or to subvert.

We must not, however, allow such association to permit us to support the allegation that the treatment adopted by Mr. Louis Davis for his apsidal chapel is unsuitable for an altar setting. Unconventional it may be—there is no wood or stone work, it is true; nothing but a picture, "The Chariot of Fire," by Mr. Louis Davis, drapery hangings, giant candlesticks in gilt-paper covered cardboard and string. Cheap, or rather inexpensive, it is true, but in no sense tawdry or lacking in respectful dignity. What is there unsuitable in this?

Except that it is more architectonic in form, Mr. Reginald Hallward's chapel is equally unconventional. Black and blue as a colour scheme for an altar is a thing we do not see every day. But how exquisitely rich and deep is the effect of the blue-painted altar-piece, with its black lacquer screen. The form of the altar-piece is striking and pleasing, and, of course, the colour owes much to the modern convention of chequer border which well emphasises the main lines. The subject of the altar painting is the Mother of Humanity, with the remnant of her children, escaping from the bondage—the blood and tears—of outworn beliefs, into the beauty and free-

dom of the Christ life, through the union of beauty and poverty. In the small medallion above this picture the new dawn is seen breaking.

On the front of the altar is a painting representing the Eternal Sacrifice on the altar of man's heart for the redemption of the world through all ages. The sacrifice is offered up by kneeling, winged, and draped angel figures of love and pity. The wings on the altar-piece contain medallions representing the angels of beauty and poverty.

Mr. Wilson's chapel, though original in design, does not depart so markedly from conventional treatment as the two we have already noticed. An altar of oak with figures under canopies at the angles and a sculptured panel of The Adoration in the centre, is surmounted by a simple reredos of sequoia in curved panels, with the ever-recurrent black-and-white chequer border. Above is an altar painting, also of The Adoration. A great treat is provided by the exhibition of the silver altar cross, candlesticks, and vases for the high altar of Liverpool Cathedral, designed by Mr. W. Bainbridge Reynolds, in collaboration with Mr. G. Gilbert Scott, the architect, and executed by E. Coulcher and E. Minns, which are splendid examples of modern ecclesiastical silversmith's work, both in design and in execution. Not a little in the scheme of the chapel is owing to the votive fishing-boat which hangs from the arch above the altar, quaintly unconventional in the rigging of the little ship, with a lateen mainsail and working lug mizen.

Mr. Spooner's apsidal chapel depends for its effect chiefly upon its altar-piece, a triptych with its centre occupied by a painting of the Virgin and Child as "Our Lady of the Time of War," by C. W. Whall and Veronica Whall, and the wings with "St. George and the Blessed Joan of Arc." An affectation of quaintness is imparted by the quasi-pent roof treatment super-imposed on the triptych. The altar has a simple white cloth with conventional ornament.

An essential feature in the treatment of the "Ecclesiastic" centre is the frieze round the dome representing the Angelic Hierarchies in mediæval forms, executed by C. W. Whall and Edward Moore, assisted by F. R. Gadsby, Basil Jones, and M. Hutchinson.

The figure-work panels below the caps of the octagonal piers around the apartment, by A. Bertram Pegram and E. Levick, we may take as representing the approved Arts and Crafts convention of the union of Sculpture and Architecture, inasmuch as a similar treatment may be seen on the buttress piers of the Hall of Heroes and elsewhere in the exhibition.

In the architectural composition of the Hall of Heroes there appears to us to be some confusion of thought in



ARTS AND CRAFTS EXHIBITION.—VIEW IN MUNICIPAL HALL.

the treatment of the axial-entrance as an apse with semi-dome over. Such a plan-form connotes a concentration of interest on the dominant point of an interior, which paramount importance can hardly be reasonably attached to the exit. There is surely bathos in the principal feature of a hall being behind us as we enter. An apsidal end always suggests enclosure and completion, and so the effect of this particular apse is irretrievably marred by the comparatively huge opening in its lowest stage. Even the presence of the never-closed doors on either side does not satisfy the feeling of want aroused by the yawning opening.

Of the design of the apse, *per se*, opinions may legitimately vary. Objection might be taken to the ornamentation of the exiguous columns with their affectedly crude caps, but at least appreciation must be granted to the ingenious variety of their decoration, and, personally, we are not inclined to quarrel with the general colour effect. The sculpture included in the composition suggests rather a collection of studio efforts than an iconographic scheme prepared *ad hoc*. The painting in the semi-dome represents "Humanity," with St. George and Joan of Arc, who, by the way, seem to be the present tutelary deities of Arts and Crafts, designed by H. Wilson, executed by Joan Fulleylove and Margaret Haythorne, assisted by Lawrence H. Christie, is a satisfying piece of decoration. Mr. Wilson's bronze entrance doors, adorned with zodiacal signs and emblems, are a quite satisfactory piece of metal-work design.

Of the paintings in the alcoves on the north and south side walls we have already in a previous article spoken in general terms. There is no sort of congruity between Mr. Southall's "Return of Peace," with its happy family in modern dress, blessed by a winged victory on

a pedestal, Mr. Gere's "The Cotswolds in War Time," with its very insistent blue-clad soldier patients, and Mr. Payne's "Death on the Pale Horse," or Mr. Ernest Jackson's "France and England." Although the subject is unpleasant, we cannot but regard Mr. Payne's treatment as a fine piece of composition and decoration. This and Mr. Harold Speed's "Love Dispelling Chaos," on the opposite wall, are, in our opinion, the two most successful pieces of mural painting in the Hall of Heroes. Purely as a piece of decoration, Mr. Sydney Lee's "Mountain Fortress" is not void of effective composition.

Quite cleverly arranged on the west wall are Mr. Lessore's gilded and painted group, "Madonna and Child," Mr. Stirling Lee's panels of Saints—"St. Ninian," "St. Anna," "St. Bridget," "St. Columba"—and Mr. Wilson's doors modelled for St. Mary's Church, Nottingham.

Spite of its museum-like character, the Hall of Heroes is an exceedingly interesting effort in composition and decoration, and its shortcomings, as we have before explained, may be attributed rather to the circumstances attending and hampering the Arts and Crafts Exhibition Society in their bold and ambitious venture.

WE regret to announce that Mr. Thomas Francis Bumpus died on Saturday last at the age of fifty-five. Mr. Bumpus enjoyed a considerable reputation as an ecclesiastical archaeologist. His volumes on the cathedrals of this and other countries were popular with a public which does not want too technical an account of what they see. Our readers will doubtless remember his contributions to "The Architect," which were spread over several years and aroused much interest.



## NOTES AND COMMENTS.

CRITICISM has been made on the proposal of Sir William Lever to which we referred last week, that the provision of free land by municipalities would in Liverpool result in a loss to the direct ratepayer; but to support his case the critic has to assume that the rates on cottage property would remain at the present figures of the "composition" rate, which are even now insufficient to meet the local charges for municipal services. A "composition" rate is a device by which municipalities pay commission to a property owner for doing what he can do better than the officials of the municipality, collecting the rates from the weekly tenants. If the municipality provides free land it can adjust the "composition" rate to a proper level, or if it is desired to subsidise the cottage occupant in the general interest of either the State or the municipality, the subsidy must be paid by one of the other representatives of the body politic. Any provision of free land for builders must be accompanied by terms of accommodation and rental. The whole point of Sir William's proposal is that it is cheaper to let private enterprise build than for public authorities to do so, and that building must be made attractive to private enterprise.

It is no use whining about the imminent peril of utter demolition to which Rheims Cathedral is exposed by the continual bombardment the fabric is receiving from German guns. It is no use appealing to the opinion of the civilised world or even of neutrals. The Huns are barbarians, and the only effective method of rescuing Rheims Cathedral and other priceless memorials of civilisation from their destroying hands is to drive them so far back from their present positions that their longest-range guns will not reach anything we wish to have preserved.

Mr. G. H. Hume, Chairman of the Highways Committee of the London County Council, has in an interview to the "Morning Post" on the discomforting attitude of Mr. Long towards arterial roads in London, defined the position of the L.C.C.

"The London County Council," Mr. Hume remarked, "being the Improvements Authority for London, its duty has been to estimate what are the most needed improvements within the county, and to decide what sums should be expended for improvements out of the rates. The proceedings of the Arterial Roads Conference have been criticised, from the Improvement Authority's point of view, on two main grounds—first, that the work of the conference would result in imposing on the Improvements Authority works which, in the opinion of that authority, might be less important than other improvements already schemed and negotiated for in many cases during a long period of years. This criticism, of course, would be very pertinent if it were intended to impose from outside expenditure on improvements at the cost of the rates. But if assistance is to come from national sources for the purpose in view the objection is no longer so valid. Be that as it may, it is of the utmost importance that at a very early stage the Local Government Board or Sir George Gibb's department should get into direct and official touch with all the Improvement Authorities of Greater London.

"The second criticism," Mr. Hume continued, "is that by laying down definitely and publicly the lines for certain roads the price of the property to be acquired is likely to be considerably enhanced. That, of course, is true. But speculators endeavouring to take advantage of such a situation may well find themselves outwitted, for there could be no cause for complaint if statutory provision were made for the laying down of the lines of the new roads to be taken as constructive notice, no enhanced value to be recognised as from that date. It has been urged that town-planning schemes should be pushed forward as quickly as possible by the various authorities concerned in order to safeguard against the acquisition of properties for speculative purposes. But

such schemes cannot very easily be applied within the County of London, with the exception of such open spaces as we find mainly in the South-Eastern section. A lot of time must necessarily go by before this procedure can be carried through, and if adequate protection is to be given Parliament will certainly have to be looked to for the purpose."

We cannot but agree with the opinion expressed that if there is to be provided at the national expense some form of memorial which can be preserved by the relatives of those who have fallen in the war, it should be in the best design that the nation can produce; and we also agree that the War Office Department Committee engaged in considering the question needs strengthening by the inclusion of one or more members of sound judgment in artistic matters. The choice of the designer, whether by competition or by selection, is of paramount importance.

Of course the decision of the Dublin Municipal Council to accept a loan of two million dollars from an American firm of financiers for housing does not meet with universal approval, but it is astonishing that out of a total of eighty members of the Council only twenty-six were present at the meeting when the matter was decided. This looks like apathy and does not presage a wise application of the money when the Council obtains it. Surely the conditions of housing in Dublin are such as to deserve the most careful and assiduous attention of all its governing body to avoid making any more muddles in remedying the appalling state of affairs in the city. If this is the way in which Irishmen treat the vital concerns of their capital city what hope is there for a wise discharge of their duties in the Home Rule of their country?

Not without adverse criticism on the experimental dial placed on the tower of the university buildings, the Court of Glasgow University have decided to accept the offer made by Major John Garraway of an electric clock, and on the advice of Sir John Burnet have resolved on a skeleton form of dial as offering the least interference with the original design of Sir Gilbert Scott.

Valuable church plate appears to be regarded by not a few poor parishes as a white elephant, but this is a view that can hardly be approved. Such property requires undoubtedly careful custody, but the generosity of pious donors in the past should at least find their successors willing to provide for their safe keeping. After all, church plate is one of the least inconvenient forms that church property can assume, and if it be admitted that present custodians may get rid of this, far stronger grounds might be adduced for their being allowed to pull down a parsonage, a chancel, a tower, a nave, or the whole fabric raised by the piety of the past.

In an address on "The Arts and Crafts and Contemporary Thought," given at Sheffield University on the invitation of the managers of the Sheffield Technical School of Art, Mr. W. Rothenstein put forward a plea for a more general recognition of the importance of the artist and craftsman as a delineator of the thoughts of the period. Art, he said, had been very much degraded in modern days in having become merely the interest of the collector. What we got in our cities to-day was practically a series of picture exhibitions, not pertaining to the higher forms of contemporary thought, not answering any of the problems by which we were all faced, but simply expressing the individual caprices of certain more or less fashionable painters. Painting nowadays dealt with the most trivial subjects and appealed only to connoisseurs. Even in this time of war, we still found in exhibitions pictures of pretty girls on settees. At a time when the youth of this country was sacrificing its life with a radiance that the world had never known, for an absolute ideal of a sense of liberty and freedom, something of that ought to be put into the fabric of our lives, so that

the people who came after would see something of our conception of life, as we saw something of the conception held by the Greeks and Romans.

Regretting that art was not more appreciated by the public of this country, he said it was Germany which took up the crafts largely founded by William Morris, and set up schools in order to make commercial use of the very things that England had produced.

Our cities ought to realise that in the bricks and mortar with which their warehouses and streets were built they must have the quality which was vaguely called idealism, but which was really the more precise interpretation of the greater realities that underlay appearance. He suggested that artists and craftsmen should be allowed to do what they could do best, and that the arts which were particularly wanted in individual localities should be developed there, and definite use made of the highest forms of craftsmanship that existed. If we could get on to our city authorities more people in touch with active contemporary thought, who knew what craftsmen really wanted to do, and what artists really wanted to express, a great movement would be started, and fewer artists would find it necessary to work for the richer patrons, for great prizes which were rare.

In reply to a vote of thanks, Mr. Rothenstein suggested, as an example of co-operation by which Sheffield art and craft students might express their individuality after the old methods, that they should take in hand the decoration of the Firth Hall. Mediæval craftsmen would have looked upon that hall as no more than a noble shell. The art students of Sheffield might, at the expenditure of perhaps a couple of hundred pounds, make the place absolutely live with their own life, covering its walls and ceiling with delightful creations; and other people, seeing these, would suddenly realise the brightness, the warmth, and the sympathy which the use of the arts could bring into their lives.

## ILLUSTRATIONS.

### CLAY SUDLOW MEMORIAL.

THIS memorial is now fixed at the Grand Lodge, Freemasons' Hall, Great Queen Street, W.C. Irish and Iona green marble has been used generally as a colour scheme. The portrait is in white statuary marble. The figures and niches are in cast bronze, and represent Truth and Honour. Jewels (rubies and opals) are used as centres in the borders of the drapery to relieve the bronze. The centre pediment is also in bronze, and the motif is the various tools used in masonry, and as a centre the collar and jewel of office worn by the late Bro. Sudlow. Below the portrait are the arms of Grand Lodge, with supporters in bronze and the crest in silver and enamels. The sculptor is Mr. L. F. Roslyn, R.B.S.

### "RENUNCIATION."

THIS piece of sculpture, by Mr. Frank Ransom, and exhibited at this year's Royal Academy, is of interest not only on its intrinsic merit as a finished work, but from the fact that it was wrought straight out of the marble without the previous preparation of a model.

### CHURCH OF OUR LADY, NORTHFLEET, KENT.

THIS church, which stands on a commanding site overlooking the Thames, consists of nave, with aisles, chancel, with side chapels, and western tower, in the lower part of which is placed the organ gallery; while the vestry accommodation is situated at the east end of the building. The church is built of Crowborough bricks, the roof being covered with dull red pantiles. A noticeable feature in the design is the frank use of reinforced concrete lintels, both over windows and doors, and also over some of the openings of wider span, which are, accordingly, square-headed instead of being of arched

form. The interior of the church is plastered, except as regards piers, responds, and quoins, &c., which are of Crowborough bricks.

The builder was Mr. J. B. Lingham of Northfleet, and the amount of the contract was £6,436. Mr. G. Gilbert Scott, F.R.I.B.A., is the architect.

## THE SOCIETY OF ARCHITECTS.

THE opening meeting of the session was held on Thursday, the 16th inst., when Mr. Edwin J. Sadgrove, F.R.I.B.A., delivered the following

### PRESIDENTIAL ADDRESS.

I have been elected to the position of President at a period when our country has been at war with the common enemy for over two years, and when our eligible members are serving in H.M. Forces and the rest of us are engaged in some other form of war service. In addition to this we are trying to cope with the many difficulties with which we are faced in carrying on our profession, and also in endeavouring to help our absent colleagues, so that they may give their whole mind to the task before them, knowing that we who are compelled to stay at home will do our best to look after their professional interests and affairs while they are fighting.

Architects are bearing at least as heavy a burden as any other section of the community, and doing it cheerfully, recognising that the nation's first business is to win its way to such a decisive and lasting peace as will preclude for ever the possibility of a recurrence of another such upheaval. All matters of professional and personal interest are being made subservient to this end. To the members serving in H.M. Forces and those engaged in the production of munitions or employed on any work tending to the shortening of the war or the upholding of the commercial supremacy of the country I raise my hat in admiration and appreciation. But is it certain that all of us, and especially those over military age, are "pulling their weight," and are there not still some who consider it degrading to their professional dignity to get away temporarily from tradition and divert their professional abilities and energies into other and more immediately urgent channels for the good of the national interests? Even if their efforts only result in the release of a fighting man, or the keeping of a civilian off the funds of War Relief institutions, it is something towards the sum total of man power.

To any such who may be waiting, Micawber-like, for something to turn up, I commend the example of an architect who, having ascertained that a War Department was in need of technical assistance in the purchase of war material, induced them to give him a trial. He justified himself, and is now chief of a large staff in which are other architects and surveyors, and he has saved the country a large sum of money by the methods and systems which he introduced.

I am aware that many architects have tried unsuccessfully to obtain Government employment of any kind in which their professional services might be utilised in the interests of the country at the present juncture. There is, however, still something to be said for the man who does not wait for opportunity but, like Napoleon, makes it. What I want to emphasise is the need for each of us according to our individual capacity to go all out for the end in view.

An architect is no less an architect because he has temporarily exchanged the T-square for the rifle, and the same argument holds good in other forms of war service, and we shall none of us be worse architects after the war for having had our outlook widened and our views on some matters modified or enlarged, as the case may be, by the experiences and trials through which we are passing.

I now pass from generalities to more concrete matters relating to the Society and its opportunities for further expansion and work at the present time, and I hope to

make some suggestions which may lead to development and useful results in the near future. Any views which I may express are my own; and, while I do not seek to bind the Council, some of the points raised may possibly be found worthy of consideration by that body. In the multitude of counsellors there is wisdom, and it may be that some of the ideas here put forward in what perhaps may be considered a crude and unfinished form may be found to contain the germ of something which may tend to solve or alleviate some of the problems and abuses with which we are faced as a profession.

It is unthinkable that the war should be considered a blessing, but it has had the good effect of putting a stop for the time being to all dissensions within this profession relating to architectural politics, and of consolidating the members into one body with one end in view.

During all this period there has been at the back of the Society's mind the feeling that the time was opportune for a discussion with the R.I.B.A. of certain points at issue relating to matters of professional interest, with a view of finding some common grounds of agreement and obviating the necessity for raising contentious questions on these matters in the future.

In regard to registration, for instance, it is not the principle but its scope and the method of carrying it into effect upon which we are divided. There is also a good deal to be said in favour of the standardisation of forms of contract and other professional documents, and the prevention of overlapping generally.

The Society therefore approached the Council of the R.I.B.A. suggesting a conference of representatives, and in due course received a reply to the effect that the Council of the R.I.B.A. was precluded from discussing controversial questions during the war by the pledges given to the general body of its members.

To me it seemed a humiliating confession of weakness to have to admit such a want of confidence in the Council by the general body of members as is shown by the reply of the R.I.B.A. to the Society's proposal.

It raises the question, Is the Society to stand still during the war and take no further steps in what we consider to be the interests of our members and of the profession? I say emphatically No! and that we ought during this coming session to consider how best we can proceed with our scheme if possible without disturbing the friendly relations which so happily exist between ourselves and other professional bodies at the present time.

I merely mention the foregoing incident to show our friends who sometimes criticise us for acting independently that this Society has made overtures for co-operation, well knowing the delicacy and difficulty of the task it undertook. The Society being itself unhampered by restrictions imposed by the members, and its overtures not being successful, it is unreasonable on the part of our friends to expect that we can do otherwise than proceed on our way with the consciousness of having first done everything possible to bring about the co-operation and unity of action which we desire to secure.

In regard to registration, there are architects whose opinions we value, who hold that to seek statutory powers for this purpose is to level down the profession, and that the way to accomplish our object is to level up by beginning at the top and raising the standard of education and qualification. These good friends overlook the fact that the full title and intention of the Society's Bill is "The Statutory Education and Registration of Architects." First educate your architect and registration becomes merely the mechanical process necessary to give him the assurance that, having spent much time and money on his education, he will not have wasted either, as is the too common experience at the present time. Voluntary education does not go far enough; it holds out no certainty, and gives little encouragement to persevere, simply because anyone can purport to practise as an architect without passing examinations or possessing any qualifications. Human nature being what it is, there must be compulsory education in any registration scheme planned

to cover the whole field and not to cater for one section only of the profession.

The Society's proposed Act is not yet on the Statute Book, but the recent changes and developments in the trend of architectural education and training in Great Britain can be traced very largely to the activity and foresight of the Society in pegging away in season and out on this question of education and registration.

There are usually two ways of accomplishing a thing, and opposition to a sound scheme not only stimulates its promoters to further effort on their own lines, but induces the opposition to suggest and adopt other means by which in their opinion the object may be obtained, if by a longer route. That is what is taking place at the present time in this matter, and the Society can fairly say that its efforts in the cause of architectural education and registration are already bearing fruit.

The Registration Bill is still in its draft stage, and while it embodies a principle which has never been abrogated, it is in my view somewhat unwieldy on a few points of detail, and I think a Committee of the Council might very well usefully occupy its time in redrafting the Bill on certain main lines which I do not propose to touch upon here, but which would, I believe, have the effect of producing a measure acceptable to the large majority of those who do not at present see eye to eye with us on certain points.

I see here great possibilities ahead for future developments and progress.

The Society's form of building contract has been on the stocks for some time, and we have now, owing to circumstances previously referred to, only to decide in principle whether it is to be issued or not for some further progress to be made.

I do not myself see that the Council have any alternative but to comply with the members' request for the issue of the document.

After all, it is intended merely as a basis upon which building contracts may be framed. It is admittedly in advance of any document of its kind, and I hope to see some further progress in this direction before very long.

The question of an amendment to the law of Ancient Lights on lines suggested by the Society years ago has been revived outside the Society. This is a healthy sign, and presumably those who are agitating in this direction would be prepared to co-operate with the Society and other interested bodies. The appointment of a tribunal for the settlement of contentious points in advance ought to appeal to all concerned, and should not be beyond the powers of the profession to accomplish. It is another matter which might well receive consideration by the Council during the war.

The present scale of architects' fees is altogether inadequate in my opinion, and, apart from this, it appears to me to be wrong in principle for an architect to be paid on a commission basis, for obvious reasons, which I need not labour here. What is wanted is not a revision of the present scale so much as an alteration in the system of charging. Here is another problem for the Society, and there is also the question of conditions of competition, in itself a very large subject to tackle.

Another matter which the Society is already dealing with is the question of new methods of construction, the more extended use of by-products in connection therewith, and the local manufacture and utilisation of certain materials for use in building. This may involve extensive scientific research, and the Society is co-operating in this direction with the Government Research Committee.

The deeper one goes into this matter, which is one intimately connected with reducing the cost of building, the more one is impressed with the necessity for some relaxation of local building by-laws, and for more elasticity in their scope and application.

These regulations must be adapted to modern requirements and made so elastic as to cover and provide for new developments and so obviate the necessity of making amendments to the regulations from time to time to meet special circumstances.



Local authorities should be given greater discretionary powers within their areas.

I feel sure that with a little organisation and co-operation between professional bodies it would be possible to impress upon the Local Government Board the desirability of making changes in the direction indicated.

There is just another matter which may fall within the scope of the Society to take up, and that is the proper acknowledgment of the architect in any publicity relating to a building for the design and erection of which he is responsible.

One frequently sees the announcement in the press of the formal opening of a building, where everyone concerned is in the limelight except the architect.

Possibly architects are themselves to blame for this sort of thing in not insisting on proper recognition; but why should they be more diffident than other artists? The architect can only be known by his work if his name is associated with them; and it might be well for all concerned if this Association could be of a permanent character for all to see, so that by his works he could be judged as well as known.

However that may be, I think it is the duty of architects to see that on such occasions the profession which they represent should have a place of honour.

The Society has been in existence for thirty-two years, and was founded for the purpose of bringing about certain reforms, principally registration at that time, but other pressing questions have arisen and developed in the meantime.

The way of reformers is proverbially hard, and the Society has had to outlive much misrepresentation and prejudice, and to learn to take and to give hard knocks in pursuit of its objects. The fact that after two years of working under war conditions it finds itself with its membership practically undiminished and its financial position enhanced is in itself evidence of the businesslike way in which its affairs have been and are being handled. The Society has established a reputation as a factor and influence to be reckoned with in professional matters out of all proportion to its comparatively small membership, and that brings me to a point which I want to emphasise.

It is obvious that in order to accomplish any one of the reforms indicated we must have more and more members. Numerical weight as well as quality is what count in the public eye; and when one is dealing with matters of such import as Registration, to take only one subject, it is essential to be able to demonstrate that those who support the principle embodied in the Bill support also the Society which promotes it. Letters of sympathy and support are very pleasant, but they do not help to foot the Bill, and these architects ought to have sufficient courage to back their opinion by becoming members of the Society.

This may be considered by some an inopportune time in which to raise the question of increasing the membership. I would only say that if the initial outlay is the chief disability there are ways of getting over such difficulties temporarily which, at such a time as this, can, and ought, in my view, to be exercised if necessary. Let no eligible candidate therefore make that the excuse.

We want more men, and there are plenty of architects at home who can join up with us now and help us in getting on with some of the problems before us, so that when our fighting colleagues come home they may find that the Society has not been unmindful of their professional interests in their absence, but has done what it can to remove some of the disabilities which existed when they left, and to rid the profession of some of those abuses which have existed for so long and which only require earnest and combined effort to wipe out or amend.

I am conscious of many shortcomings in this brief address. I have just tried to put a few thoughts together for our consideration as a body of professional men banded together for the common object of the good of the community.

I cannot close without an expression of appreciation of the good services which the technical and lay Press have rendered to architecture and to the profession in the past. It is within their power to control very largely the destinies of any schemes of reform by influencing public opinion for or against them. A great responsibility therefore rests with the Press, which they have invariably recognised by the extremely fair and impartial manner in which they have handled questions of professional and public interest as affecting architecture and architects. The Society asks nothing better than that the searchlight of publicity should be brought to bear upon its proposals for reform, so that any defects may be made clear and some remedy sought for their amendment.

Constructive criticism is helpful, but even destructive criticism is preferable to apathy; and I should like to see architects take more personal interest in following up or initiating correspondence on matters of general interest affecting the profession, for which the Press affords such valuable facilities.

### HOUSEHOLD GODS.

It was a happy thought on the part of the organisers of the third of the weekly discussions at the Arts and Crafts Exhibition when they asked a lady to preside. For the topic was "Household Gods"—a subject on which a feminine mind might give a valuable lead. That Miss Lena Ashwell failed to direct the words of the speakers into the more domestic channels was through no fault of her own. Her opening speech was characterised by strong common sense no less than by virile elocution. Everyone will agree that the essentials of "Household Gods" are to be found covered by the one word Truth, and that Truth includes Beauty and Joy. Keats in his Ode to a Greek Vase says "Truth is beauty, and beauty is truth." There must not be any form of insincerity about Household Gods. The importance of them lay in the fact that what one's atmosphere is, one is, and that the nation is also. The ultimate necessity in household arrangements is that all the work should be simple and easy to perform, and the work should be interesting in the doing of it. It was no use expecting happy homes so long as they were filled with a lot of hideous things which had to be kept clean; for instance, a kitchen with a nice tiled sink gave greater happiness and interest to its occupants than one with an iron sink and cumbersome ranges. Miss Ashwell considers the most important thing in her life was that she was brought up in her Canadian home, where everything was done by the family, and that as a child she had to stand on a stool and make bread for the family. She believes that was the only way people should be brought up, because it is only when one has had experience of work, and knows its difficulties, its pleasures, and the length of time and amount of labour required to complete it that one can appreciate service right through the nation. Miss Ashwell boldly suggested that a law should be passed by which no municipality could permit the erection of a house which was not easy to live in. The existing rows and rows of hideous dwellings at places like Stratford might be well destroyed by the citizens, and any new ones proposed on the same lines should only be permitted as temporary structures. But not everyone will agree with the speaker that the love of beauty felt by the occupants of such houses is keener than that of more fortunate people because their need of it is the greater.

Mr. Frank Chitham, speaking as a business man, offered some mild criticism of the way the exhibition is run. He brought several of his firm's buyers to Burlington House, and they admired much of what they saw, but they found there was no way of getting into touch with the artists there. In fact, there appeared to be no organisation linking up the producer with the distributor. There should be an easier method of getting into touch than by making individual communications. The Department Stores, he suggested, offered a medium by which

such goods could be more largely sold and still more largely known. Such stores were very adversely criticised; but one must take things as they are. There undoubtedly was a demand for cheapness, yet there was also a demand—and one very difficult to fill—for the very best things which it is possible for hand and brain to produce.

By W. FOXTON.

In taking part in these proceedings to-day one cannot escape the feeling of novelty in discussing in this temple of art the problems of trade. The importance of trade has been discovered. Trade touches each one of us at every point in our daily life.

Without trade Burlington House would not have been built. The artist whose paintings adorn these walls commits an act of trade when he sells his art.

Art and industry, too long estranged, seem to be striving to arrive at an understanding. With patience and a genuine desire on both sides to work together for the common good, reconciliation should be complete.

One cannot fail, in going about the country, being impressed with the number of shops offering antique articles for sale, and one wonders where they all come from.

The great art workers of the past must have had much larger workshops than is popularly imagined if they produced all the things one sees exhibited and are sold in their name.

This trade in things of antique appearance is detrimental to modern development and progress and against the best interest of industrial prosperity. If the public taste could be directed towards well-made modern things, it would encourage craftsmanship and stimulate a greater individuality in work.

It is a little difficult to understand the enthusiasm for a rickety old milking-stool while the well-made one of new appearance would not be considered worthy of a place as a Household God.

Many other productions are influenced by the atmosphere of antiquity, and for the purposes of trade fall into line. Fabric printing is one of them. Old brocade designs and effects which are unsuited and were never intended for the printing process are copied. There are signs to be found of greater freedom and individuality in the production and distribution of things for the house, particularly in simpler forms of design and display of colour. This desire for a little more cheerfulness is a welcome development and should be encouraged. In many ways this tendency towards simplicity and simpler form in design makes for the general good. It helps to cheapen production and brings within the range of moderate incomes better things.

To the smaller householder whose spending power is limited, and consequently the maximum of quality and attractiveness the more necessary, it should be especially welcomed.

Most healthy beings find a natural delight and attraction in colour; yet as a nation it would seem we have grown to be almost ashamed of it. It is a general opinion that the country as a whole during this generation has not lived up to the traditions of quality, workmanship, and good design handed down by past industrialists, nor held ground with other countries. There are no doubt many contributory causes: keener competition, desire for cheapness irrespective of quality, and a general indifference to excellence on the part of the public, may be cited.

Under modern conditions of trade there can be no doubt that a discriminating and educated public in the long run would be a great safeguard against bad work.

There must always exist a very large section of the public who, in a more or less degree, are at the mercy of the trader, and it is in this direction that every effort for betterment should be made. It should not be admitted that cheapness is any excuse for ugliness. There is no reason, for instance, why a stuffed doll for poor children, sold in the shops for 6d., should not be attractive. It

may even possess great merit in design and colour; the cost of production is just the same.

In discussing the question of fitness, better design, and workmanship—we must remember that manufacturers and distributors are in trade for profit, and in this respect in the pursuit of their calling have much in common with other citizens; sympathetic understanding of their difficulties is very necessary. The trade buyer is dependent, though not entirely, on what the producer has to offer him. He is not engaged by his employer to create, but to buy, to do a maximum of trade, and show a given net profit. In this way his time is fully occupied. To justify his position and attain the end in view he buys down to what is called the public taste.

Universal standardisation of production and fixing of selling prices at the present time is too impracticable to be discussed, though to a small extent in the furnishing trade selling prices are fixed with beneficial results.

The producer and designer, in co-operation with the scientific and other skilled workers, should be the autocrats of trade. The art designer must take a pre-eminent place in the commercial life of the country, and, together with the producer, lead, not follow public taste; more than ever in our history will the prosperity of the country be dependent upon excellence as well as volume of production, together with a constant flow of trade, for its complete achievement. Behind it must be a happy and contented people.

No movement for betterment which ignores these factors can be of national importance.

### TRIAL BORINGS.\*

By Sir MAURICE FITZMAURICE, C.M.G., M.A., M.A.I., LL.D.

It is commonplace to remark that the information obtained from borings is not always reliable, particularly when the ground is of a variable character. It is true that with certain classes of boring machinery, particularly when in rock, we can obtain cores which give information of great value. In many cases, however, it is very difficult to form a just estimation of the ground when the material has to be broken up by the ordinary drill before being brought to the surface. After all information has been obtained by borings, the fact remains that all we have is a rough idea of the nature of the ground at the exact spot where the boring has been made. In many cases, if one goes 50 feet north, south, east, or west, very different information is obtained. I am sure we all have had experience of being deceived by borings. I know of a recent case where a series of borings was put down for a wharf wall at short intervals on the line of the wall, both back and front, and what was considered to be the level of solid clay was established. As the work proceeded, however, it was found that deep pockets of mud, going to a great depth, existed between some of the borings. There have been cases of railway cuttings where the borings made to disclose the level of the rock unfortunately went into pockets of soft stuff, and I have known one case of that kind where the cost of a very large cutting eventually came to more than double the estimated cost. My partner, Sir William Matthews, when recently referring at this Institution to borings put down with the greatest care for the Outer Barrier Hodbarrow, said: "If the engineers had purposely placed the borings so as to deceive the contractors with regard to the level of the clay bed, he did not think they could have placed them in better positions."

Such cases could be multiplied at will, and it is quite obvious that borings cannot be made at such close intervals as will disclose, as far as borings can, the nature of all the ground which has to be dealt with.

Then there is the important point that even if by borings the nature of the ground be disclosed, we obtain very little information as regards the quantity of water

\* Extract from the Presidential Address read before the Institution of Civil Engineers.

which may be met with, the dealing with which may be a very important item, both in the cost and time of the undertaking. I was recently pressed very hard by a client to state from borings whether it were possible to construct a graving dock on a certain site. I knew from the borings that water was found all over the site, and although the levels and character of the water did not help me much, it seemed more than possible that there might be direct connection with a large adjacent expanse of water. I had to say that I was unable to answer the question, and that the only way I could suggest to obtain an answer was to sink a shaft for 50 feet down from the surface of the ground and find what pumping power was necessary, taking also careful notes of the material found as the shaft was sunk and the effect, if any, of the pumping on the adjacent ground. My last information was that a very large number of pumps had been employed, that the shaft had been got down about 25 feet, and that it was not proposed to continue the experiment.

Another matter which it is very difficult to determine by borings is what effect the pressure of the ground may have on the works which it is proposed to construct, or what safe foundation pressures can be adopted. We have recently had an important discussion in this Institution on earth pressure, and suggestions were made, after some experiments had been carried out, that the old formulae for earth pressure might with advantage be revised. The experiments referred to were not on a large enough scale to enable any definite conclusion to be arrived at, but discussion showed that there were different views on the best method of calculating the pressure of a soft material of a more or less uniform character. When there are real differences of opinion on theory, and when there may be considerable local variation in the character of the material to be dealt with, it is easy to imagine the difficulty of accurate appreciation of the strength required for underground works, when the only data afforded by borings arrive in a crushed-up state through a comparatively small tube. Long experience in such cases is the principal base to work from, but even then considerable latitude is left to the personal factor or even to the imagination of the engineer.

There have been cases where borings have been very carelessly and inaccurately made and wrongly described, and there is nothing which brings more trouble in its train. I have in mind borings for a very important work, made by the client and supplied to the engineer, where the information supposed to come from the borings proved to be partly of an imaginative character. Fortunately, such cases are of rare occurrence, as engineers generally have borings made under their own control, and recognise the necessity of having a thoroughly reliable assistant continually in charge of the work.

In some cases there are such great difficulties in putting down borings that hope of information from this course must be abandoned. We can sometimes get help by putting them down outside the site, and geologists who have studied the district can give great assistance. We cannot, however, be certain. It was mentioned in the paper read here on the Assuan Dam that it was not possible to obtain borings where the line of the dam crossed the three summer channels of the Nile, on the edge of the First Cataract, owing to the rush of water. It was assumed that in the bed of these channels, which were very deep, all the soft granite had been eroded and that the river was flowing on solid rock. This view seemed reasonable, particularly when it was known that the sides of the channels, as far as they could be examined, were good granite. When the channels were closed off, one by one, by temporary dams it was, however, found that there were very great depths of decomposed granite at the bottom of the channels. The cost of the additional excavation and masonry was very great, but fortunately, owing to an exceptionally low and late Nile flood, the time of completion of the work was not delayed.

Another case I might mention where borings were not possible was that portion of the Rotherhithe Tunnel

under the River Thames. The line of tunnel passed in front of the entrance to the London Docks on one side and the Surrey Commercial Docks on the other side of the river, and owing to the shipping entering and leaving the docks it was not possible to make borings. The only information as regards strata in the river length given to those tendering for the work was that obtained by dredging some comparatively shallow holes in the river-bed near the line of the work. There is considerable variation in the bed of the Thames, even in comparatively short distances, and the contractor, as a preliminary operation, very wisely drove a small pilot tunnel near the top of the large tunnel right across the river, so as to obtain information, and incidentally it was also useful for other purposes.

In both these cases, which are not isolated instances and are only mentioned as they come within my own knowledge, the estimates of cost and time had to be made on imperfect information, but the best which could be obtained.

### TOWN PLANNING OF GREATER LONDON.

At University College, Gower Street, Professor S. D. Adshead, M.A., F.R.I.B.A., delivered on the 7th inst. the first of six public lectures on "The Town Planning of Greater London after the War."

It is difficult, he said, to foreshadow events that are likely to take place after the war; but of this we may be assured, that there will be changes, both political and social, tending to an amalgamation of interest, a co-ordination of effort, and a universal impulse to build and reconstruct. That this is so is inevitable and apparent on the most superficial reference to history.

A national impulse of this kind, converted into action, becomes a very powerful weapon. Used without that sort of direction that recognises those finer attributes of the individual it will fail. It may produce a sort of material efficiency. It may be productive of national wealth, in so far as wealth means merely a banking account and material power, and it may even be the means of bringing about great economic improvements in the organisation of towns; but unless guided by a national sentiment which demands the realisation of the highest democratic ideals it will be harmful.

The war has taught us to take quite a new view of values. Military expediency is habituating our Government to deal drastically with the interests of the individual where the interests of the community are at stake. And it has become an obsession that half-measures in all fields of national activity are methods to be deplored.

Much uncertainty seems to exist in the minds of many people as to what undertakings we shall be able to embark upon when peace is declared, having regard to the nation's depleted coffers, and generally the difficulties of finance. In the view of many highly competent to judge, the power to carry through undertakings ultimately depends not so much upon the acquired wealth of a nation, its actual bank credit, as upon national energy and national security. With Imperial trade relations and international agreements of a kind never before enjoyed, it is not going too far to assume that the means for carrying out any undertaking the successful realisation of which can be reasonably assured will always be forthcoming.

There will be changed conditions of a social nature providing new problems to be solved. Modifications in house planning, tending to increased convenience and to the instalment, even in the dwellings of the poorest, of every kind of labour-saving device, will, if desirable before the war, be increasingly so afterwards.

A million men who under pre-war conditions had spent their youth between the nineteenth-century standard street of a manufacturing town and the sedentary occupation of an operative in mine or mill will not, after two years or more of open-air camp life, return kindly to the old conditions. We cannot in the space of a year scrap all our hideous towns; but it is our duty to these



men to do what we can, and to see to it that under no circumstances whatever are these old nineteenth-century industrial organisations with their sordid surroundings allowed to be repeated.

A review of the development of English towns during the last twenty years shows that there has been a loss of personal influence previously exercised by landed proprietors. That influence over building operations has gradually been usurped by their agents and a new commercially-minded building development type of man. But conditions are again rapidly changing. Local authorities are stepping in, and private interests are gradually shifting into the hands of, more or less, public utility societies, and into the hands of an altogether new type of builder, who, previously disdaining terrace building, confined his attention to and found greater scope for his abilities in operations on a larger scale.

When peace is declared, it is under such circumstances that we shall suddenly be forced on by the national impulse to proceed with the erection of houses for the people as a national undertaking of first importance. And very much depends upon the sort of influence that is brought to bear on the minds of the higher officials as to the way in which this work is done.

Two kinds of buildings must stand in the forefront of the national reconstruction programme: first, factories; and second, cottages. But perhaps the order should be reversed. It is computed that there will be a shortage of at least 350,000 cottages by the end of the year. Is this not, therefore, a time for town planning? We are continually being informed that the need for providing roads is not immediate, that what is wanted are houses. There is surely no man in the country who knows anything about town planning who would for a moment suggest that the nation should embark immediately on a great expenditure on roads; but what all would insist upon is that every facility should at once be provided, both for fixing the position of the roads in reference to the surrounding area, and also for deciding upon the best use to which each area can be put.

Professor Adshead then proceeded to discuss the place of London and its future development in reference to certain capital cities of other nations—Paris, because it is the most beautiful; New York, because it is the most advanced; and Boston, because it is one of the most typical of modern towns.

*Paris.*—There are attached to the "Préfecture du Département de la Seine" two administrative departments for the control of the growth and development of Paris. Their duties would at times seem to overlap. The one under M. Bonnier controls the Services of Architecture and Parks, and the other Parks, Gardens, Streets, and Boulevards. The immense impulse given before 1874 has been continued, one may say on the same plan, by an uninterrupted effort of forty years. The sum total of great works entered upon since the Franco-German war which have been carried out by loans authorised by the municipality up to the present time involves an expense of more than two milliards, of which 786 millions are for highways so-called, 366 for water and sewers, 376 for architectural works, and 620 for the Metropolitan Railway.

*New York.*—New York, like many other cities that are artificially separated from their populous environs, as is Liverpool from Birkenhead, has suffered through an unnatural separation of interest. New York has also been seriously menaced in regard to the unrestricted heights to which her buildings have attained, and the consequent congestion that has ensued. She has therefore during the last few years concentrated upon improvements that could be brought about by instituting a closer relationship between the different boroughs (which were consolidated in 1898 into the City of New York) and in the control of her abnormal growth. Within the last twelve months, as the result of a great work accomplished by the Heights of Buildings Commission, legislation has been passed which completely controls not only the height but also the use to which buildings shall be put in the different

areas of the city. The city has been "districted," and the heights of buildings in proportion to street widths will vary in the different districts. Thus there is a once-times district, a one-and-a-half, a two-times, &c. Two-and-a-half times is allowed in the office and financial sections of Manhattan. There is for each district a minimum height that will be permitted, and a maximum height that may not be exceeded regardless of the width of the street. In the matter of comprehensive planning, New York has done a considerable amount both of officially recognised and unofficial work.

*Boston.*—It would seem that Boston has been one of the busiest cities in America in the matter of preparing for the future. But what is of the greatest interest at the moment is the work of the City Planning Board: a board formed some two or three years ago, which, working outside the City Council, receives a grant from it and advises it on matters pertaining to city planning. A law was recently passed in America whereby every town having a population of over 10,000 inhabitants is authorised and directed to create a Planning Board, whose duty it is to make careful studies of the resources, possibilities, and needs of the city, particularly with respect to public health and housing, and to make plans for development. The board is appointed by the Mayor and makes its annual report.

*London.*—There is proceeding to-day around London a constant building of new suburbs; there is also a keen competition between the suburbs, and their success and rapid development depends, among other minor things, upon their accessibility, and in the case of suburbs for the middle class upon the care with which they are developed and the natural amenities that they enjoy. And here we are faced with the great question of transit, of transit occasioned by the diurnal journey between suburb and town. Collaboration, and not competition, should be the keynote of every system of transport projected in the future. Town planning should not only precede road construction, but also it should precede railway plotting; and desirable areas for new developments having been decided upon, railways may be made to pass through them or alongside of them, but always in tube or cutting. A continual problem in the planning of city extension is how to deal with old places of historic interest that lie in the route of progression. Barnes, for instance, less than thirty years ago was a delightful village; now the greater part of it has vanished and the rest threatens rapidly to disappear. Had there been a town plan made for Barnes, new Barnes could have been planned in open fields and made a really fine place instead of the topsy-turvy collection of the worst specimens of modern architecture to be found anywhere. Other places on the river, like Chelsea, Chiswick, Mortlake, Strand-on-the-Green, Kew, Isleworth, and Twickenham are similarly threatened. And delightful spots like Mitcham, Morden, and Eltham have also a distressing outlook.

Surely main roads should be planned so as to avoid intersecting such places. And new stations should be decided upon in connection with such places and the areas they serve so that the main approach from the new development is not through one of these old hamlets. Where to encroach on them is unavoidable, and there are many such cases, as far as possible they should be left in the lurch, or, as the Americans say, "side-stepped." The Germans, whose appreciation of other people's artistic treasures is but too well known, are singularly alive to their value when they are their own. In rapidly developing German towns like Cologne and Frankfurt the old mediæval centre has been left intact, and carefully restored and preserved. To destroy the river front of the Mall at Chiswick or the Village Green at Mitcham would be an unpardonable sin which future generations would everlastingly deplore.

Then there is the problem of the planning and treatment of main roads where they pass through existing or prospective residential areas. Some contend that by-pass roads should be constructed around every nucleus. Others say that main roads, if properly constructed, are

best planned when taken through the centres of towns. The essential thing to be remembered in planning such areas is that where there are shops there should be at least 80 feet between the buildings and a 50-foot roadway. And in the interest of residents, where the approach is through a residential area, there should wherever possible be an intervening grass space between the road and the garden fence of at least 50 feet—100 is better where possible. The application of this principle can, of course, only be expected to apply in the case of main arterial and circumferential roads, and in such cases where possible there should be a subsidiary road of 16 feet with or without a path on either side.

Finally, there is the problem of whether main roads ought to be taken through parks and public open spaces. As a principle, one would say "No"; but in practice one need have no hesitation in so doing if a greatly improved route is obtained, and where the open space traversed is on such a scale as that the actual loss of ground is immaterial, or can be made up by acquiring additional land on one of its boundaries.

The application of town planning principles, in a measure worthy of the great capital that London is, needs a centralisation of authority such as does not at present exist. Jealous as we are, and should be, of undue interference with local interests, we must appreciate the fact that Greater London is not a congeries of detached villages, having no interest in one another. There is on foot a strong movement for the establishment of some central authority with power to plan and finance the making of main roads. There should also be established an authority which can deal similarly with open spaces and prospective railways. For it is only by the exercise of broad views and by considering London's future in a comprehensive way that the costly mistakes of a century can be avoided and London take that place in the Empire which she is destined to occupy.

### THE PLAN AND FURNISHING OF CHURCHES.\*

By REV. JAMES COOPER, D.D., D.C.L., Hon. Litt.D.,  
Regius Professor of Ecclesiastical History of Glasgow  
University.

(Concluded from page 272.)

I COME now to the interior of the church. I believe that all my hearers will agree with me in thinking that it is a hopeful sign when we find a church-building committee in one of our Scottish towns telling the architects whom they asked to send in competitive designs that what they chiefly wanted was a good interior. This is a welcome change. It is not so long since the main thought with such bodies was to provide "an ornament to the city," or to "add a new beauty to the landscape." Only here, again, we may go too far. The outside need not be like a cart-shed! I prefer the Psalmist's picture: "The King's daughter is all glorious within: her clothing is of wrought gold." But the inside first.

First, the church is for the people. Granted! But what are the people gathered in church to do? To see their neighbours? To enjoy a concert? To hear a sermon? No; but to worship God. "The Father seeketh such to worship Him." Christian worship is the most ennobling exercise and the highest privilege man can enjoy in this mortal state. For this, above all, are our churches reared. I need not tell you how constantly the principle has been lost sight of. It should cut off two arrangements that palpably, and on the face of them, contradict it: (1) the side galleries, which seem specially designed for their occupants looking at each other; and (2) the sloping floor, like the pit of a theatre. I thought we had got rid of both; of the latter (which is the worse of the two) in particular. But I grieve to say both are still too often with us.

A gallery at the west end of the church is by no means

so objectionable as side galleries are. It is often useful, and can be made ornamental.

Second, for seating the congregation, chairs have been tried: not, I venture to think, with conspicuous success. They may be employed to accommodate the worshippers on portions of the floor-space which it is desirable to have clear upon occasions; but for regular and habitual use they are not suitable. Rush-bottomed chairs soon become receptacles of dirt, perhaps of worse. They are noisy; and, so far as my observation goes, they do not give that encouragement to the people to kneel at prayer which was expected to result from their adoption. A fairly wide pew, with a good kneeling-board, is much more satisfactory. Mr. Butterfield invented a simple kneeling-board which I have found effective; and in a church at one time much abused by people who never saw it, which possesses merits that ought to be extolled, St. Margaret's, Barnhill, a system of folding kneeling-boards has been introduced, so easily worked and so perfectly suited for its purpose that the whole congregation may be seen every Sunday "meekly kneeling on their knees" at the time of prayer. I do not know anything in regard to the externals of religion that ministers and architects should strive more strenuously to encourage. The kneeling posture is a real help to the spirit of prayer: it removes many temptations to those distractions to which we are all too liable.

Third, in point of fact there has been little enduring fixity of worship in Presbyterian Scotland. The most striking illustration of that in our day has been the rapid, and all but universal, adoption of instrumental music. No "innovation" of King James VI. or King Charles I. was more commented on than the "organs" they caused to be played in the chapel at Holyrood. The dislike to them was at least as strong in 1855. "Eh! but it's a sad way o' spendin' the Sabbath Day"—the comment of the old nurse whom her mistress took to an Episcopal chapel—exactly expressed the popular opinion. Dr. Robert Lee, who practically introduced the "kist o' whistles" in 1859, only died in 1868. There seemed every probability that if he had not taken a stroke of paralysis he would have been deposed! Now, as a Free Church session clerk told the late Mr. Stevenson, the eminent London architect, when he asked whether in the new church he was to build in Glasgow he must provide a place for an organ, "If you haven't an organ you needn't open the church door!"

But where will you place your organ? Positively the worst place for it is the chancel. To build a chancel and fill it with an organ is an architectural absurdity, an ecclesiological outrage. It is bad artistically, and it is (I speak it in all seriousness) fraught with a real spiritual danger to the congregation. The special temptation, when you have an organ and fine music, is lest you teach the people to regard the singing as having for its object not the praise of God, but their own pleasure. Yet, if you set up the organ in front of them, and (what invariably follows) range the choristers in front of it, facing the congregation like singers at a concert, you do your very best to lead the choir to think that they are there to sing concert music, and the congregation to come to listen, not to praise.

If I may venture an opinion, I think that we should keep the choristers out of the chancel altogether. The old arrangement for the parochial (as distinguished from the cathedral or monastic) choir was in the west gallery, with the organ there also. The one objection I have heard to this is that it removes the choristers somewhat too far from the supervising eye of the minister! An excellent arrangement has been adopted in the new Greyfriars Church, Aberdeen, where the organ is placed in a chamber on the south side of the chancel, and is played from the east end of the south aisle, the choir being accommodated in the portion of the aisle nearest the organist. Perhaps a still better method, adopted at St. Oswald's, Edinburgh, is to set the choir in the front seats of the transept, into which the organ-chamber

\* Part of an Address to the Divinity Hall, University of Glasgow, at the opening of Session 1916-17.

opens. Best of all is the plan adopted in a new parish church at Forfar—placing the organ on a screen separating the nave from an ante-chapel, with seats for the choristers in front of the organ. The placing of the singers among the people is in accordance with the nature of their office; which is not, as I have said, to sing to the congregation, but to lead the congregation in singing to the praise of God. It has the sanction, moreover, of the Greek Church, where the choir gather under the central dome, and of the Spanish Church, which sets them, even in cathedrals, in the nave.

I am far from venturing to foretell what may be in store for us in the future. We have, I believe, in our Church one surpliced choir already; but I do not, I confess, think the example likely to be followed. For congregational singing I think it well to have some women's voices. And I am ungallant enough to say frankly that I do not like to see a mixed choir sitting in a chancel, or even in a choir just slightly separated from the chancel and in front of it. That means either a crowded chancel, which deprives you of the space desirable for the dignified solemnising of our holiest rites; or, what is only less objectionable, a chancel so long that the minister when he celebrates the Holy Communion is too far away from the communicants.

Fourth, coming now to the pulpit, the object of the Christian preacher is not to draw away the disciples after him, but to point and lead them to God in Christ Jesus. Therefore, while the pulpit should have a place of honour, because preaching—I mean the preaching of the Word—is God's appointed means for this purpose, yet it should not have the central place, as if it were an end, or the end, in itself. It should stand aside. It should not be too large, but it is an error also to make it so small as to be insignificant. It should be high enough to give the preacher command over the hearers; it should not be so high as to put him out of touch with them. May I commend to you that old-fashioned ornament, the canopy? Nothing has ever been devised which contributes so much to the dignity of the pulpit as a piece of church-furniture; and, like other time-honoured adornments, it is often of notable use as a sounding-board. There are two beautiful examples—one in late Gothic and one in Jacobean—at King's College Chapel, Aberdeen (the older one came from Aberdeen Cathedral), and there is rather a good one in the old church of Lethendy, near Blairgowrie. The seventeenth-century (1684) pulpit of St. Giles at Elgin was rescued from imminent danger by one of the ministers of that town, and has been set up in the new church of St. Columba.

Fifth, the pulpit called John Knox's at St. Andrews shows two desks—one for use when the minister faced his people to preach to them, and another facing in a different direction when he was engaged in praying with and for them. The example which in this respect that Reformer set supplies a precedent for the prayer-desks which have come in of late; I hope to be regularly provided, and duly used. It is better to have two of them, one at each side at the entrance to the chancel. Prayer is as great as preaching. It is a distinct portion of the service, and should be recognised as such in every fully furnished church.

Sixth, I do not think that the lectern should be fixed to the floor; and there are many types of reading-desk, simple or splendid according to the size of the church and the resources of the people. There is no reason why the lectern should always be in the form of an eagle, or always of brass; though the eagle type may be finely treated, and brass, well kept, is a beautiful metal. But, pray let your lectern, whether plain or gorgeous, be a bit of genuine design: a work of art in the sense of the artist, not of the shopkeeper.

Seventh, we become members of the Church by the Sacrament of Baptism. "By one Spirit," says St. Paul, "are we all baptized into one Body." In all cases you must see that this sacrament is ministered with great reverence; on which account it is right to have it usually in church. But another chief reason for having it in church

is that the living Church may know those whom God is adding to its fellowship and committing to its love and care. Therefore the baptismal font, besides being beautiful in honour of the spiritual greatness of the rite, should be so placed as (1) that the congregation may see the administration of it; and (2) that its significance as the rite of entrance may be brought out. The first of these considerations forbids (as it seems to me) the plan which I observe has been followed in some new churches, of placing the font in a side chapel off the nave, and so invisible from it, for this practically means that baptism can never be administered in the great congregation, but only before those specially concerned in it. And it further deprives those members of the congregation who are seldom invited to such functions from the benefit of a service which our Church, in its Larger Catechism, describes as fraught with spiritual power. The second consideration (that baptism is the sacrament of entrance to the Church) suggests that the font should be near the door. This, I am aware, is exposed to a well-known sentence, "where of old the fonts were superstitiously placed," and it has been urged that it prevents the congregation seeing the fulfilling of the rite. But a late General Assembly, when asked to censure this position, refrained from doing so; and if the pews are as wide as on all grounds they ought to be, the congregation—who are, of course, standing—can easily turn round. In cases where the font occupies this position, parents, I know, are easily persuaded to bring their children to church, and at the same time the administration of the rite greatly gains in significance and beauty.

The font should be large, with a capacious basin and a seemly cover. The ewer for the water should be of suitable metal, and should stand beside the font.

Eighth, I come now to the Holy Table, at which in the most sacred rite of our religion we make the appointed Memorial of Christ and receive the Communion of His Body and Blood. This is at once our supreme act of believing worship and the highest privilege we can enjoy on this side the grave. Our Church reminds us in her Larger Catechism that it is part of each communicant's duty to "observe the sacramental elements and actions," so as to take in all that Christ would teach, as well as "seal and apply" by means of these. Therefore the Holy Table should not be set too far away from the people, which means, I take it, that the chancel in a parish church should be comparatively short or shallow, and also that the chancel floor should be sufficiently—but not too highly—raised. The space round the Holy Table should be as ample and as unencumbered as possible; handsome panelling, or hangings, higher than the minister's head as he stands behind the table, should form a rich but quiet background. The table itself should be large and of a proper height; it should be carefully designed, and rich enough to evince our high esteem of the sacred Mystery to be celebrated on it. Stone or marble may be used: the Church of Scotland has not forbidden either of these materials. Personally, I have a strong dislike to bare wood, especially the yellow oak which so many seem to fancy. I think we have too much joiner-work in our churches. A table should have a cover; and what our fathers called a decent carpet, of velvet or some rich stuff, I always think the most appropriate of all adornments. As far as I know, the two first instances of such communion tables in recent times in the Church of Scotland were put up, the one at Inchinnan by Dr. Lockhart (the brother of the biographer of Scott), the other at Erroll by the late Principal Caird. Dr. Lockhart had his table covered with blue velvet; Dr. Caird threw over his a rich pall of crimson velvet. Of course, such covers require to be well kept. But no church can ever be preserved in seemliness and neatness without the constant supervision of a strict and loving eye.

I have left myself little time to speak of the other *instrumenta* of a well-provided parish church—bells, books, communion plate and linen, the alms-dish and alms-bags, embroidered hangings, altar-cloths and book-



marks, flower-vases, and such like. Every one of these deserve attention. There is not one of them that may not so be used as to impart a touch significant of care and love, and capable also of awakening interest and thought, if they are treated as they may be.

Flowers should be put round the Holy Table, or on a shelf behind it, but not on it: the *mensa* should be reserved for the alms and sacramental offering. Ornaments can best be in the form of special gifts from guilds or individuals; but it is well to make it a rule that all such gifts should either be designed by the architect, or the designs for them submitted to his judgment. The lamp of sacrifice burns all the brighter if it is placed under the law of obedience.

I wish to say, however, that I like to see in a church some quiet monuments or memorials of those who have ministered or worshipped there before us: they remind us of more than our own mortality—though we have no small need in these days to remember we are mortal. But these speak, too, of the Communion of Saints, and the life everlasting which lies before us.

Stained glass is now accepted everywhere: it was a thing unheard of among us seventy years ago. The introduction of it was suggested by the late Dr. Sprott to Dr. Robert Lee when he was engaged in the restoration of Old Greyfriars about 1857. Like other innovations, it has been a blessing not unmixed; but it encountered less opposition than might have been expected: in fact, it rapidly became popular, and we have had to be careful ever since to get the right sort of it—stained, not painted; devotional, not monstrous, not vulgar, not obtrusive, not utterly commonplace. Mural paintings are now finding favour, and those not only on the flat surface, but in high relief. We may welcome all. All varieties of art may enlist in the service of Him Who is the Author of all beauty and the Redeemer from all evil. But all these, if they are to come in, must come in submission to His law, in harmony with His doctrine, in the sanctification of His Holy Spirit.

## ART IN LONDON.

### THE MODERN MASTERS OF ETCHING.

(SECOND YEAR.)

At the Leicester Galleries Messrs. Ernest Brown and Phillips have brought together a very interesting collection of modern etchings by artists who, in many instances, are of world-wide renown. Wherever work by men of the calibre of Sir Seymour Haden, Professor Legros, Josef Israels, Messrs. Mortimer Menpes, Albany Howarth, Pennell and Zorn may be seen, the value of the exhibition is at once assured. Mr. Augustus John, too, is apparently at his best with the needle; certainly in his "Self portrait," "Old Scott," and "Lady with necklace," he shows to advantage. We are not au mieux with the art of J. M. Whistler as here expressed, but "Bibi Valentin" is exceptional in its attractiveness and its good technique.

The special feature of the exhibition—the work of M. A. Lepère—did not prove impressive or even ordinarily attractive, except as regards "Cardeuses de matelas au Pont Marie." Mynheer van Gravesande is notably represented in "La Meuse devant Dordrecht," and his "Breakwaters" though unelaborate is good work.

There is of course the usual contribution of what smells of the lamp, but not amongst the names above listed. Mr. W. P. Robins is masterly in "Staple Farm" and others. On other occasions we have made reference to the misdirection of hatching on the part of some etchers, and this is again noticeable though less conspicuous. How many and varied the designs we have seen for the Tower of Babel! and M. Bauer's is not in the least a probable solution, but as a matter of technique it is all right. Samuel Palmer's "Early Ploughman" and Mr. Mortimer Menpes' contributions

(particularly "S. Maria della Salute") prove especially attractive; Mr. Menpes' art is of a high type, unfortunately not much followed. A very masterly work is Professor Legros' "Sir Charles Holroyd," as also his "Cabane dans les marais." Mr. Nelson Dawson has overworked his "Venice by Night," and Mr. F. Carter seems to possess a penchant for unpleasant conceptions; witness here his "Piccadilly." We can refer to three more exhibits only—Josef Israels' "Fisherman," Mr. Howarth's "Arno" and Sir Seymour Haden's "Whistler's House at Chelsea," but the good works are by no means exhausted in thus bringing this notice to a conclusion.

### THE ROYAL SOCIETY OF BRITISH ARTISTS.

WHILST parading the Galleries in Suffolk Street, taking stock of the exhibits, an affable stranger approached the art critic and commenced declaiming against the quality of the work contributed. It was, however, a source of pleasure to be in a position to reply that despite the presence of too much that was poor, and even worse, there was still a much greater proportion of praise-compelling exhibits than was usually to be seen. We say "praise-compelling," but that may give the false impression of begrudged praise; whereas it is far preferable to be confronted with work where sight and admiration are simultaneous in action.

Mr. Alex. Maclean is a case in point, his three contributions (more particularly "By the Light of a Golden Moon") being masterpieces and limned poems. So, too, with Mr. Hely Smith's work, as represented by "When Seas run Mountains High" in the first place, very good art being also present in "A Cornish River" and a portrait of Mr. R. Gudgeon. Most of the portraiture on view is either poor or, at the best, undistinguished; and if in this connection we pillory Mr. Max Martin in lieu of other painters, it is attributable to his canvas No. 89, whereon the face presents to view half the colours of the spectrum. Mr. E. Patry is unequal in his portraiture; "Souvenir of the Eighteenth Century" is charming with its concentration of delicacy, bloom, and technique, such as eighteenth-century art itself supplied; "A Study" (47) lacks these qualities notably. Mrs. Brunton's miniature (60) is scholarly, and has an interest, a value, apart from any contemporary attachment; her book-plate designs are of unequal value, No. 126, however, being distinctly pleasing and decorative.

Mr. Davis Richter is good at floricultural presentation; in "An Old Garden" the foreground flowers need brightening in relief of the general neutral effect. Mr. F. Gregory Brown has two exhibits, the colouring of No. 28 being superior to No. 20, the latter being far too insistent, even after making allowances for the difference between external and internal atmosphere.

And Mr. Brangwyn's "Susannah and the Elders"? Ah, yes! This will be, of course, run after by the general public, much as Susannah was pursued by the Elders, who by-the-by might have known better than to have their pulses beat more rapidly on account of such unfeminine charm, when there was (according to the artist) such a wealth of colour in Nature surrounding them. Mr. A. W. Dow should choose subjects not objects; "My Hat, hog's-hair brushes, and match-box" and "Toys"—these are not worthy to be displayed, though not perhaps unworthily displayed. "A Westmorland Beck," by Mr. Robert Morley, is very fresh and is redolent of its environment, and the same artist has a good crayon study of a lion's head; "In Sympathy," too, tells its story not unsympathetically. We think that selection and hanging committees should possess and should exercise discretionary powers—but then, *Quis judices judicabit?* When we observe such exhibits as Mr. Witcombe's in Nos. 81 and 90, Mr. Blaker's, and some others, we fervently desire the exercise of discrimination; it is not fair to the artist or the public, in our view, to display what is obviously unworthy.

Mr. Hannaford's exhibits are distinctly good of their kind and class, nor must notice of Mr. Haslehurst's "In





*The Architect*, Nov. 17<sup>th</sup> 1916.



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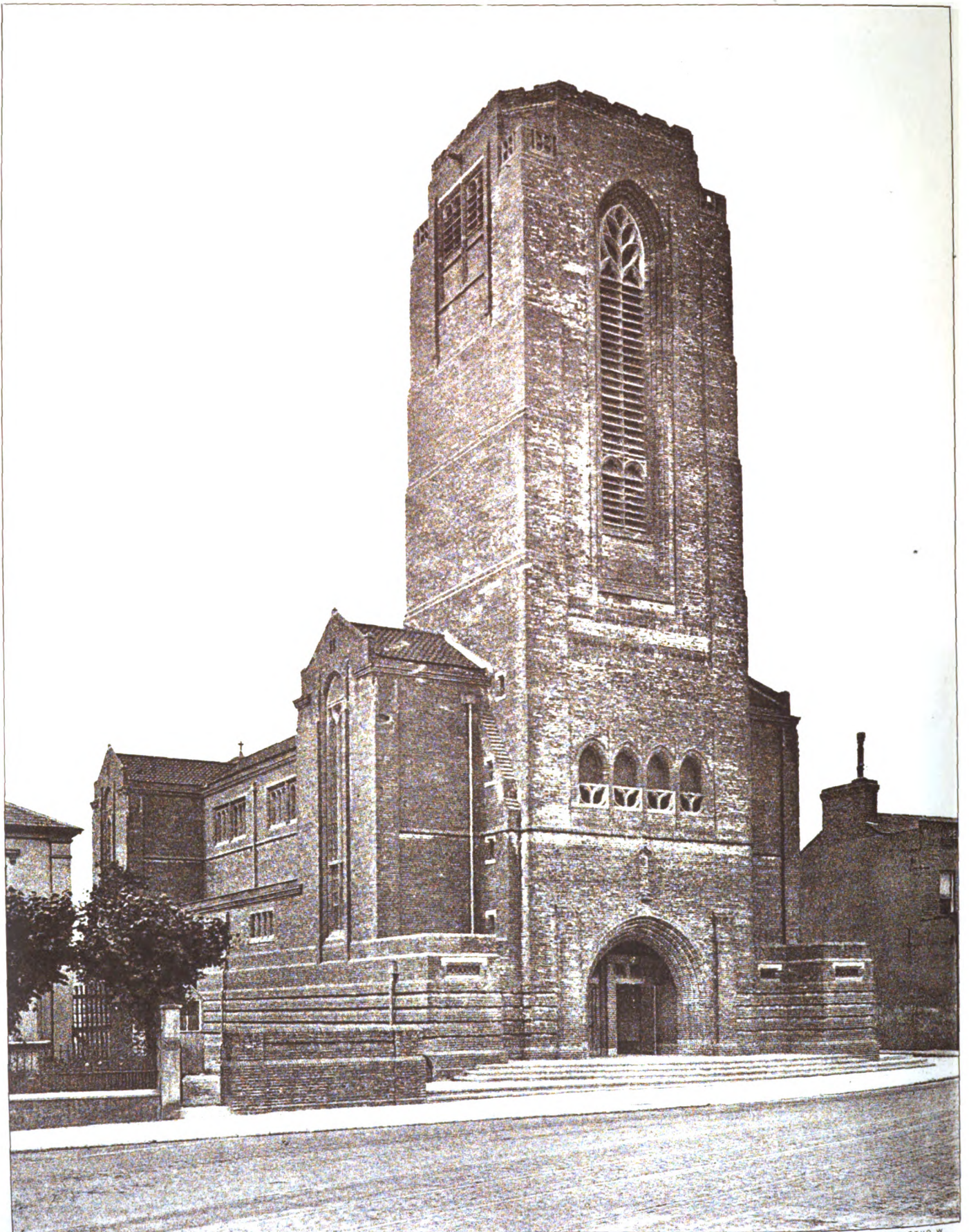
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**CHURCH OF OUR LADY, NORTHFLEET, KENT. NORTH AISLE LOOKING EAST.**

**MR. G. GILBERT SCOTT, Architect.**







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CHURCH OF OUR LADY, NORTHFLEET, KENT. VIEW FROM NORTH WEST.

MR. G. GILBERT SCOTT, Architect.





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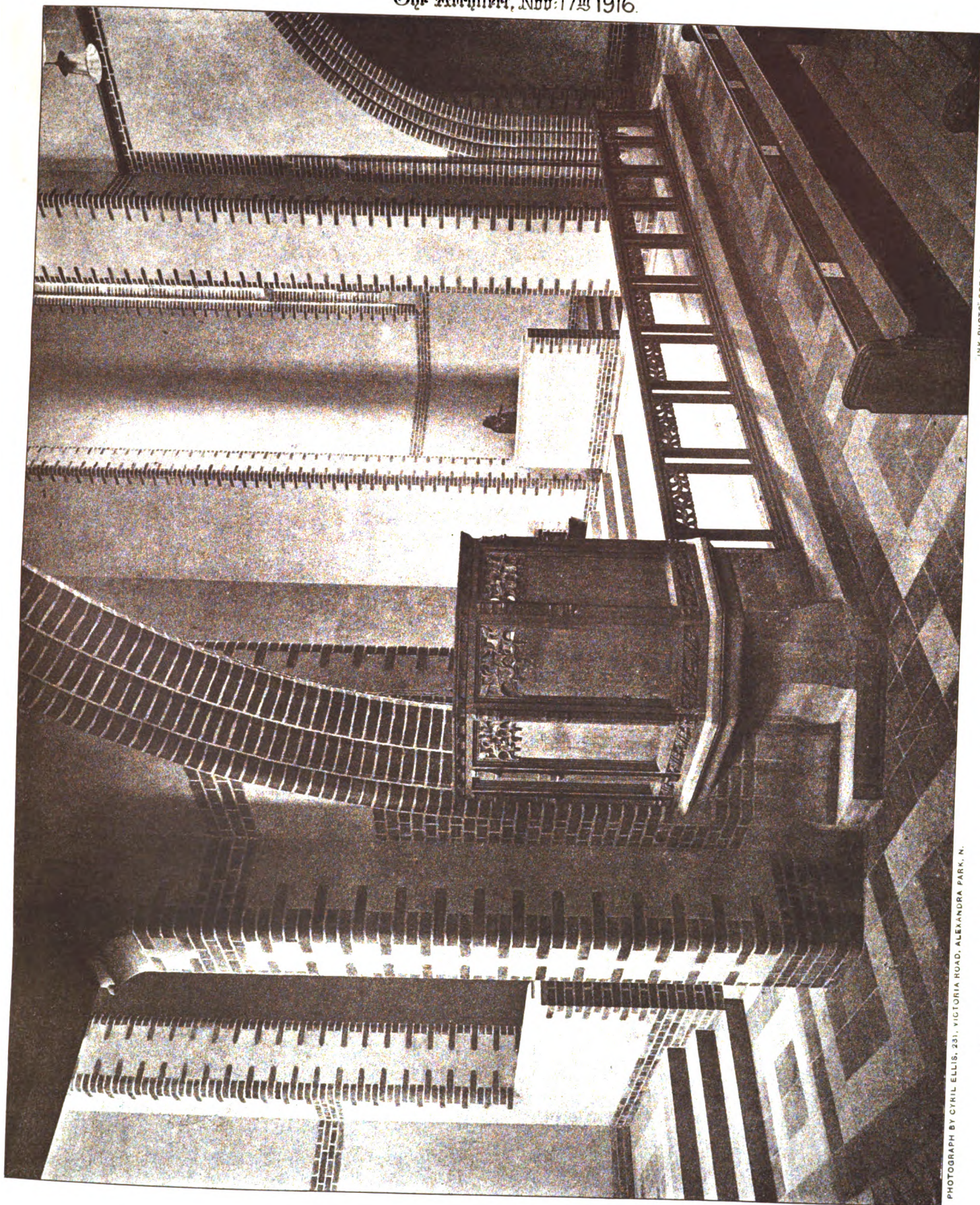
**CHURCH OF OUR LADY, NORTHFLEET, KENT. VIEW OF NORTH SIDE.**

MR. G. GILBERT SCOTT, Architect.









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CHURCH OF OUR LADY, NORTHFLEET, KENT. VIEW FROM NORTH AISLE, SHOWING PULPIT, & C  
MR. G. GILBERT SCOTT, Architect.

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# THE CLAY-SUDLOW MEMORIAL.

By MR. L. F. ROSLYN, R.B.S.

(Royal Academy Exhibition, 1916.)



Nov. 17th 1916.



INK PHOTO. SPRACUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

**"RENUNCIATION."**

**By MR. FRANK RANSOM.**





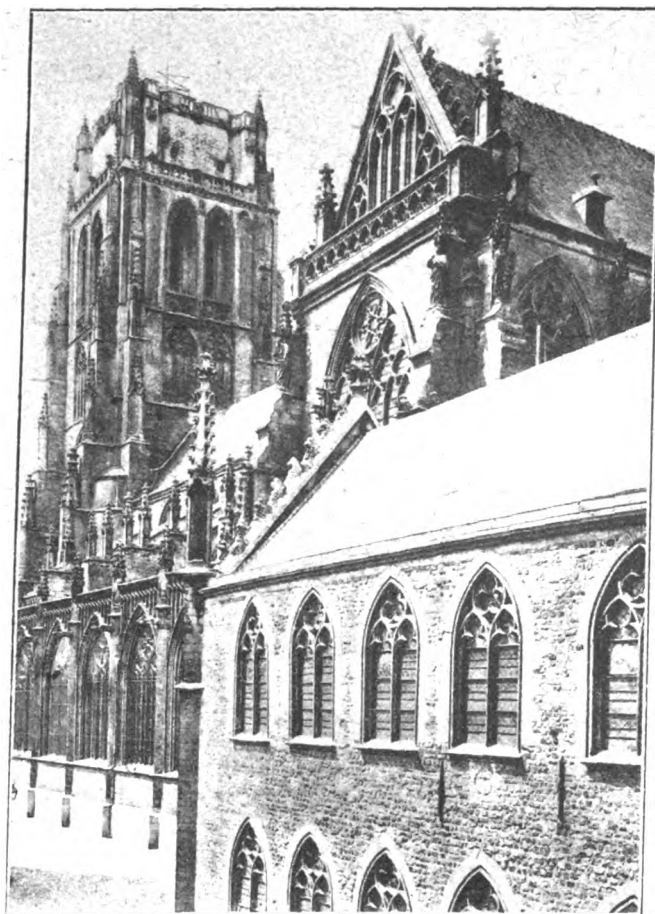
the Woods " be omitted. Mr. Montford's plaster study of a head for "Smelting" shows good modelling and plenty of character; it forms part of a group for the Imperial College of Science and Technology.

There is much good work (even as there is much otherwise) passed over in this notice, and we can cordially recommend the exhibition to the attention of the public.

### TONGRES STEEPLE—A GERMAN OBSERVATION-POST.

THE possible preliminary of the bombardment of the great tower of Tongres Church was reported in the daily Press of November 1. The excuse for such bombardment, we all know now, would be that the tower was

ingham Lane, is of importance to the architectural antiquary owing to his great achievements and advancement of the city's welfare, in recognition of which three hundred of the principal men subscribed £1,000 each on his retirement from his official duties, and presented the money with a suitable testimonial to him after a service of three decades. It occurred to me that when such historic abodes of illustrious men pass through architects' hands in the course of their professional practice, it would be advisable to place them on permanent record in the professional journals, where reference easily could be made to the full and complete indexes furnished therein. With this object in view I beg to forward a photograph of the above villa standing in its own grounds, with rising terraces. The stone-fronted house was built forty-five



THE CATHEDRAL, TONGRES.



INTERIOR OF THE CATHEDRAL, TONGRES.

being used as an observation-post against the Germans, whereas it is the Germans themselves who have just turned the wonderful steeple to such uses, as they have done elsewhere in the war.

Whether the protest of the Bishop of Liège will have the desired effect is a moot point, and the protest may lead to the bombardment and firing of the church out of spite, even if the Bishop be not made a prisoner.

No doubt Bruges belfry is now, and has been for two years, a German observation-post, though it has not been made public, thus sparing us much anguish of mind.

There is a beautiful Romanesque cloister at the east end of the great church, and the trésor, before the war, was a very rich one.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### Historic British Homes.

SIR,—The residence of the late Town Clerk (F. McGowen, Esq., of Bradford), No. 1 Oak Villas, Mann-

years ago, at a cost of £1,750, by the late Mr. McGowen, and I am at present engaged supervising the work of making good its external dilapidations and decorations on behalf of his son (of the firm of Messrs. R. McGowen & Son, solicitors, Liverpool) and co-trustee. The style of architecture is an admixture of Classic and Gothic, which needs adjustment to make it orthodox. The arches are Classic, whilst the barge boards are of the Decorated period in the four gables terminating in three stories, with ornamental finials, giving a picturesque appearance. There are three entertaining rooms and six bedrooms with requisite conveniences and outside offices.

The services of Mr. McGowen were requisitioned in many negotiations in respect of land purchases, provisional orders, and Acts of Parliament connected with railway and canal undertakings on behalf of the Corporation, when his legal acumen was beneficial to the rate-payers.

The condition of the city prior to the Domesday survey is obscure, observes a local historian; some evidence of the Romans has, however, been discovered, coins of various Roman periods having been found in the district, together with traces of Roman roads, although no Roman station has been discovered in the vicinity. Coming down to the Norman occupation, we get away

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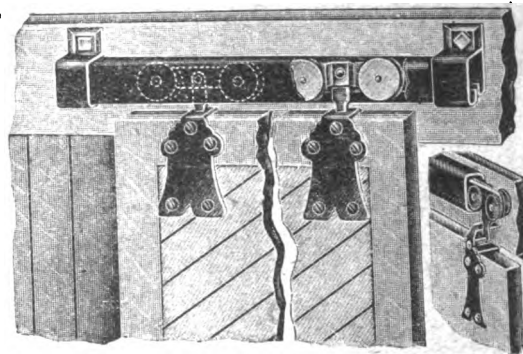
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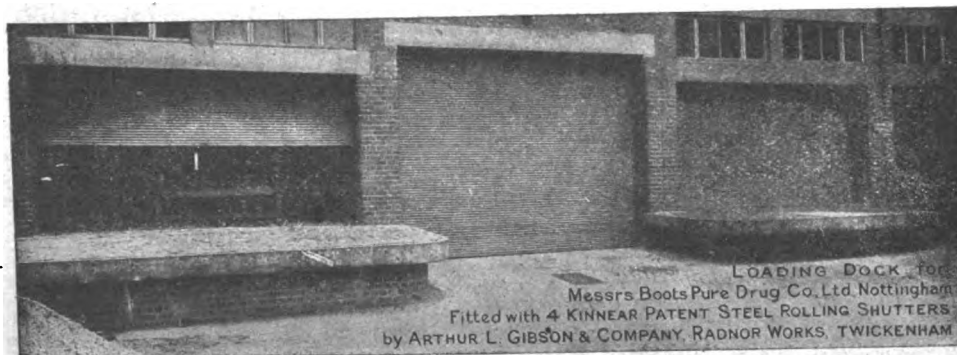
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from the region of conjecture. For 230 years the manor of Bradford remained in the hands of the De Lacys, in 1310 it passed to the Earl of Lancaster. Leland, writing of Bradford in the reign of Henry VIII., describes it as a "praty quick market toune, which standeth much by clothing," and the same can now be truly said of it in the present reign of King George. The city is supplying wool for the clothes of our troops and those of our Allies. Also from being a town almost devoid of points of interest (except antiquarian) it has become the metropolis of the worsted industry. I have also supervised alterations and decorations for the same trustees at Nos. 1 and 3 Upper Duke Street in this city, to make them suitable for a laundry in connection with Messrs. Cottle's extensive restaurant business. The contractors in both cases are Messrs. Linacre & Co.—Yours, &c.,

J. H. MCGOVERN, Licentiate R.I.B.A.,  
Architect.

Liverpool: November 7, 1916.

#### Charing Cross Bridge.

SIR,—Your two correspondents in last week's issue are both more or less in favour of the retention of the bridge, one for his own personal convenience or to suit his pocket (I should guess that he was a house agent), and the other, my friend Mr. Mark Judge, who rightly, I think, raises a strong note in favour of the company's view. This is a point apt to be overlooked even by our "all-wise" House of Commons, consisting as it does so largely of lawyers and cranks. We have, thank Heaven, some good business men there, and perhaps they would grasp the idea that, first of all, this bridge should be put into a state of safety at once, and at the close of the war our national memorial might well be the erection of such a bridge (combined rail and road) as should be a fitting reminder to the generation to come of how their fathers fought and bled for freedom's sake, and, may be, were brought in from France or Belgium across the river by that bridge to regain their health in one of our London hospitals. What a memorial this might make! What a competition for architects, and what a chance for engineers!—Yours, &c.,

PICKWICK.

Croydon: November 13, 1916.

SIR,—I was much struck with the difference in the two letters in your last week's issue, and yet each from its standpoint is most reasonable. "Constant Reader" has in mind the welfare of his fellows, and incidentally of himself; presumably, Mr. Mark Judge looks at the subject more particularly from the point of view of the railway company and its shareholders. Following this it was my fortune to be able to read in "The Nineteenth Century" the article by Captain G. S. C. Swinton, entitled "Castles in the Air at Charing Cross," and I venture to quote the following paragraph:—

"Now, do not let us forget that, though this railway company is a dividend-earning concern, it is also one of the notable servants of London, and that the whole of London is interested in these her servants. Charing Cross Station, and the bridge without which it would be useless, are very valuable property to some Londoners. We may condemn our forefathers for allowing the railway to come there, but we must bear in mind that a large section of the public profit enormously by the permission granted. It is not only the Kent and Continental traffic which is brought into the heart of London, but there are tens of thousands of so-called 'daily-breaders' who use it every morning and evening. Their work lies near the terminus; their homes lie along the suburban lines. The company has virtually contracted to bring in their trains across the river—dry-shod—men and women from a great mass of nearer and further suburbs. Many of these have bought and built houses on the strength of this contract, and we have to consider their interests. When a travelling communication has been long established, it is not fair light-heartedly to destroy it. We want to make traffic conditions better, not worse."

It is somewhat unfair to quote this bit, as the whole article should be read; but it suffices to assist me in making my point, which is that undoubtedly the railway bridge must stand for the benefit of the public. How to improve it is a question that can be safely left to better hands than mine.

Apologising for taking up so much of your valuable space.—Yours, &c.,

A DAILY-BREADER.

London, S.W.: November 14, 1916.

#### The Dangers of Hasty Burials.

SIR,—The letter of "E. L." in your issue of November 10 reminds me that at a meeting of the Association for the Prevention of Premature Burial, Dr. Walter R. Hadwen remarked that some sceptics had sought to minimise the seriousness of the dangers of premature burial by asserting that the oxygen within the closed coffin could not support life for more than three or four minutes, but that depended upon several circumstances. A Paris surgeon, M. Bernard (said Dr. Hadwen), certified that in the parish of Riol he himself saw a monk of the Order of St. Francis, a cataleptic subject, who had been buried for three or four days, taken from the grave breathing and alive, with his arms lacerated near the swatches which bound him. An account of this remarkable incident was drawn up by public authority. It would appear to be quite possible for a person to survive for forty to sixty minutes in a closed coffin, and what a century of mental and physical agony could be compressed into that brief space of time!—Yours, &c.,

BURIAL REFORMER.

November 13, 1916.

#### St. Dunstan's Giants.

SIR,—Your correspondent "Omega" has started a fine strong hare in questioning whether the Fleet Street of 1916 is as attractive as, say, that of 1850 (to go no further back towards the good old times) when Dickens was saturating himself with impressions. Thanks to the expenditure by the City Corporation of enormous sums of money, it is undeniably a broader thoroughfare. Furthermore, the rise of the modern Press has made it the most wonderful street in the world, *par excellence* the Street of Adventure. Against this, "Omega" tells us that it has lost its waxworks, toyshop, Miss Linnell's needlework exhibition, and—most serious of all—the famous St. Dunstan's Giants. But let "Omega" take heart. Within the last three or four years, unless my memory deceives me, visitors to Fleet Street were invited to pay their coppers in order to see a Fat Lady.\* Shortly after the outbreak of war young Amazons, obviously arrived from the Wildest and Woolliest West, set up a shooting-gallery where the young journalist was taught that a gun was mightier than the pen. We even have still our needlework exhibition, which attracts a good deal of attention from passers-by: it consists of three young ladies seated in a shop-window visibly doing "invisible mending." Across the road we can watch grimy cobblers hard at work repairing the damage done by our stoney-hearted stepmother. Toyshops may not flourish, but philatelic merchants abound. It would be easy to go on naming ways in which Fleet Street can still enthrall the stranger. But if "Omega" will not be happy until he has seen the St. Dunstan's Giants he must spend 2d. on a 'bus-ride to Camden Town and then walk to St. Dunstan's Villa (now St. Dunstan's Home for Blinded Sailors and Soldiers) in Regent's Park (Inner Circle), where he will see them on the garden front. He will also see there something even more precious—namely, our blinded heroes in their own special home. The story of how the giants got to Regent's Park is excellently told by Mr. W. G. Bell in his "Fleet Street in Seven Centuries," and we venture to quote the following:—

The third Marquis of Hertford, when a small and impressionable boy, was taken to see the clock at St. Dunstan's Church. His delight in the working figures inspired visions of the joy of ultimate possession, and he declared,

## **Important Notice.**

---

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"When I am a man I will buy that clock, and put it up in my house." Early last century Marylebone Park became converted into Regent's Park, and the Crown reserved portions of the land for terrace-houses and villas. A site of six acres was taken on lease by Lord Hertford, who built a villa there. It happened that this very year, 1830, old St. Dunstan's Church in Fleet Street came down for rebuilding, and in the new plan, which placed the church farther back and allowed for a considerable widening of the highway, the clock and giants had no part.

Lord Hertford, then grown a man, seized the opportunity to fulfil his boyish wish. For the clock, the bells, the club-bearing giants, and the storey in which they are framed, together with the ancient statues of King Lud and his two sons, which had been removed when Ludgate was demolished in the previous century and made a gift to St. Dunstan's Vestry, he offered 200 guineas. That sum was accepted, and the trophies were carted to Regent's Park. Moxon says their removal drew tears from the eyes of Charles Lamb.

Lord Hertford called his new house St. Dunstan's, after the church, and there he placed the clock, as it stands to-day, the structure below bearing niches, in which are King Lud and his sons. These three stone effigies are much mutilated, and show indications of scorching by the flames of 1666.

Mr. Bell also tells us that the clock was made by Mr. Thomas Harrys, living at the end of Water Lane, and it was set up on October 28, 1671. The vestry paid him £35 and threw in the old clock.—Yours. &c..

A FLEET-STREETER.

## BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

### ENGLAND.

#### CHESHIRE.

*Birkenhead (near).*—Villa, Liscard Road: conversion into house and shop. Mr. J. H. McGovern, architect, 67 Dale Street, Liverpool.

#### DERBYSHIRE.

*Chesterfield.*—"The Half-moon" Inn, Chatsworth Road: alterations.

"The Star and Garter" Inn, New Square: alterations.

#### ESSEX.

*Braintree.*—Mess-room for Messrs. Lake & Elliot.

Metal shop for the Crittall Co., Ltd.

Workshop, Coggeshall Road. Mr. A. G. Wicks, builder.

*West Ham.*—Engineering Works in High, Lea and River Streets, for Messrs. Towler & Innes.

#### HAMPSHIRE.

*Bournemouth.*—Motor garage, Keswick Road, for Mr. W. Wilkinson.

House, Stourcliff Avenue. Mr. H. B. Mudge, builder, 119 Haveland Road, Boscombe.

"Lammermoor," Gervis Road: additions.

House, Newstead Road, for Mr. F. Johnson.

Pair of houses, Roberts Road, for Messrs. Burridge & Bovill.

#### KENT.

*Chatham.*—Bungalow, Lordswood Lane, Walderslade, for Mr. J. Wilson.

Cottage, Pattens Lane, for Mr. Thomas Scott.

Foundry, Fun Lane, Strood: additions for Mr. W. Barker.

Store, for Messrs. Joseph Collis, Ltd., Strood.

Villas, Maidstone Road. Messrs. W. E. R. Randall & Sons, architects, 171 High Street.

*West Malling.*—Malling Abbey: additions. Mr. F. T. Foulger, architect, Gray's Inn Road, London.

#### LANCASHIRE.

*Ashton-under-Lyne.*—Infirmary: extension (£3,500).

Mr. W. H. George & Sons, architects, 7 Warrington Street.

*Leyland.*—Works, Quinn Street: extension for Messrs. Iddon Brothers, Ltd.

#### MIDDLESEX.

*Chiswick.*—The "Grove Park" Hotel, Grove Park Road: alterations.

#### NORTHAMPTONSHIRE.

*Denford.*—Proposed school for sixty-six places.

#### SUFFOLK.

*Uulton Broad.*—Works, Riverside, Victoria Road, for Messrs. J. W. Broome & Co., Lowestoft.

#### SURREY.

*Croydon.*—School for mental defectives, Grange Wood: enlargement.

#### WARWICKSHIRE.

*Corentry.*—Holy Trinity Church: tower restoration (£8,500).

#### YORKSHIRE.

*Barlby.*—Proposed school for 210 places.

*Harrogate.*—Infirmary: proposed extensions.

### SCOTLAND.

*Annan.*—Premises, Station Road, for the Scottish National Council Y.M.C.A.'s (£2,500).

*Dunfermline.*—Wesleyan church and Institute. Rosyth (£1,500), for the Wesleyan A. and N. Board (Westminster).

*Glasgow.*—Business premises, near Duke Street: extension for Messrs. W. Beardmore & Co., Ltd. Warehouse, Netherton Works, Anniesland: extension for the Ioco Proofing Co., Ltd.

## CHARING CROSS BRIDGE AND THE L.C.C.

At last Tuesday's meeting of the London County Council reference was made to the controversy concerning Charing Cross Bridge.

Mr. John W. Gilbert (chairman of the Education Committee) asked Mr. Andrew T. Taylor, the chairman of the Improvements Committee, whether his attention had been called to a statement in the Press over the signatures of Mr. John Burns, M.P., Sir Aston Webb, R.A., and Mr. Reginald Blomfield, R.A., that the Council had promised to take up the matter of the future of Charing Cross Bridge, and whether any understanding or arrangement, public or private, had been arrived at in this respect by the Improvements Committee or by anybody acting on its behalf.

Mr. J. D. Gilbert, M.P., asked whether the Improvements Committee had come to any decision respecting a new Charing Cross Bridge, whether the Committee had called any conference of the public bodies interested in the matter, or had any delegates been sent to any other conference, and, if so, by whom was such conference called.

Mr. Andrew T. Taylor, in reply, said that no decision had yet been arrived at with regard to a new bridge; the whole matter was under discussion by the Improvements Committee and the South-Eastern and Chatham Railway Company. A report would be submitted when the matter was ripe. The statement referred to by Mr. J. W. Gilbert was hardly correct, as the Council had given no promise to take the matter up. No understanding or arrangement, public or private, had been arrived at by the Improvements Committee or by anyone acting on its behalf committing the Council in any way. As he stated in evidence before the Committee of the House of Lords, the fact that there was not a dissentient voice in the Improvements Committee of the Council when they decided to oppose the Bill showed, in his opinion, that the Council meant business. Therefore he undertook, if the Bill were rejected, to bring the matter again before the Improvements Committee and the Council so as to get an assurance that he might communicate with all the public bodies and parties concerned to see how far co-operation could be obtained. Speaking for himself he would like to add that it was his earnest hope that the Council would be foremost in bringing about, in due time, such a magnificent improvement to London as it would assuredly be.

SIR JAMES DROMGOLE LINTON, president of the Royal Institute of Painters in Water-Colours, of Haverstock Hill, who died on October 3, aged seventy-five years, left estate of the value of £10,600.



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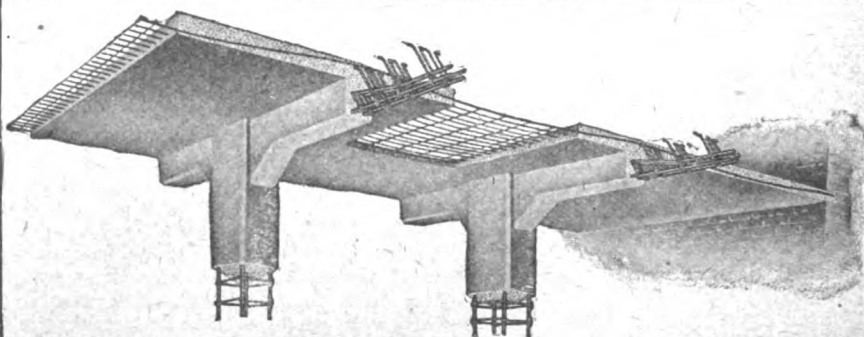
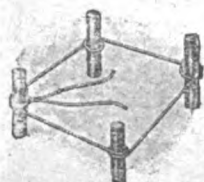
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# THE ARCHITECT

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## FORTHCOMING EVENTS.

Tuesday, November 28.

University College, Gower Street, W.C.: The fourth of six public lectures on "The Town Planning of Greater London after the War," by Professor S. D. Adshead, M.A., F.R.I.B.A., at 5.30 P.M.

Thursday, November 30.

Chadwick Lectures: The first of three lectures on "Architecture in Relation to Health and Welfare," by Mr. Paul Waterhouse, M.A., F.R.I.B.A.

L.C.C. Central School of Arts and Crafts, Southampton Row, W.C.: University Extension Lecture IX. on English Architecture: "Westminster Abbey," by Mr. Banister Fletcher, F.R.I.B.A., at 6 P.M.

## THE METRIC SYSTEM AND THE COMING COMMERCIAL WAR.

THE necessity, if we are to be successful in the coming commercial war, of thoroughly overhauling, reorganising, and where necessary scrapping some of our antiquated systems so as to bring them into line with modern methods, is now generally admitted. Various suggested improvements have from time to time been advocated in the technical and general Press, but the importance of discarding our complicated tables of weights and measures and boldly adopting the French metric system has been seldom referred to. It is true that at the last annual summer meeting of the National Federation of Building Trades Employers of Great Britain and Ireland a resolution in favour of the metric system was passed, but what is necessary, if the Government are to be placed in such a position that they cannot help taking the necessary steps to secure the change, is that practical workers in all trades should follow this lead, and that the movement should secure the support of the Press generally. Of the ease with which the metric system is employed in executing building work the writer can speak from personal experience in France. So much time is saved that, were it only a question of our home trade, its use would be extremely advantageous, but when we take into consideration our foreign trade its adoption becomes imperative. We must remember that the metric system is used by 480 millions of people, and over forty countries, including six of our Allies—Belgium, France, Italy, Portugal, Roumania, and Serbia. The following are a few extracts from the American report on the metric system in export trade, issued January 6, 1916, by the United States Senate:—

"Exporters most earnestly favour the increased use of the metric system in the development and holding of foreign trade. With the growing use of the metric system at home and abroad, it is clear that not only is the policy of extending its use in manufacture warranted, but it is essential. Exporters will agree that the more complete the use of the metric system, the easier it is to obtain foreign orders. From this point of view no argument is necessary.

Any manufacturer who, through ignorance, fear of confusion, or lack of enterprise, is unwilling to attempt to meet the requirements of foreign trade should confine his attention to our domestic trade. Industrial changes, which in many cases mean discarding and scrapping expensive manufacturing equipment, are being made in almost every line, and it is considered profitable to do so. No less in the scale and tool trades will a movement towards the international system of measures awaken

the spirit of enterprise, and instead of confusion it will probably result in a new era in those industries." With regard to adopting a decimal system for our coinage, this is on a different footing to weights and measures, owing to the fluctuations of exchange. It matters very little to other nations what basis we found it on, but it is certainly desirable, so as to make the change as easy as possible, to retain as many of the old values as we can. Probably the best way to do this would be to adopt the system advocated by the Decimal Association, —namely, to take the existing florin as unit, and subdivide it into 100 cents. To quote Mr. Max M. Kay: "If we do this we get a perfect decimal system, and retain the following values, though not necessarily the names: the sovereign or ten-florin piece, the half-sovereign or five florins, the florin, the shilling, and the sixpence, which becomes a 25 cent piece. In the smaller coins we discard the threepenny bit and substitute for it a nickel 10-cent piece, equal approximately to 2½d., a nickel five cent, and copper coins four, two, and one-cent. The humble penny will be the four-cent coin, of which twenty-five will then make up a florin instead of only twenty-four as now."

## ST. NICHOLAS PRIORY, EXETER.

ST. NICHOLAS PRIORY—or at least that part of it which the enterprise of the Exeter City Corporation has saved as a show place for posterity—was formally reopened by the Mayor on the 1st inst., and is a most interesting addition to the relics of antiquity which are being preserved wherever possible in the ancient city.

The Priory, says the "Western Morning News," dates back to the Norman period, when it was part of the chief of the numerous monastic foundations in the city, and it has been restored from use as five tenement houses into which it had fallen when the City Council discovered its antiquarian value. When William the Conqueror came West he gave St. Olave's Church property to the Abbey of St. Nicholas—which was probably only subordinate in importance to Battle Abbey—and the monk Gunterus, who was sent down to manage the property, founded the priory close to the church, probably appropriating to the use of the former some of the estate with which Gytha, mother of King Harold, had endowed St. Olave's. The priory grounds originally occupied (except for the site of St. Olave's Church and a few houses in Fore Street) from Mary Arches Street to Friernhay Street, and from Fore Street almost to the city wall by Snail Tower—a very big slice out of the limited area within the old city walls. The priory was probably at the zenith of its power and prosperity in

1346, when there is some evidence of it taking an equal share with the Mayor and commonalty in the government of the city. With other minor religious houses, the priory was suppressed in 1536. The property got into various hands, and soon after the Reformation the beautiful and sumptuous church belonging to the priory was purchased by the Chamber of the city, who caused it to be demolished and its materials applied to the repairing of the Exe Bridge and the city walls.

John Haydon and Thomas Gibbs (of the Clyst St. George family still flourishing) in 1545 bought the estates of the priory and other religious houses for £899; but four years later they passed into the possession of the city's representatives for £1,460, coming finally into the formal control of the Corporation on October 7th, 1555. The priory and hospital site, granted to Sir Thomas Dennis, of Holcombe Burnell, in 1541, was bought by the Corporation eight years later. By the end of the next century, however, they had parted with the property in lots, and now the City Council has been at considerable pains to restore to something like their original form a few remains which have once more come under their care. Of the original buildings—which were erected on the four sides of a cloister—the north and west wing only remain. It is the west wing that has been reacquired and restored by the Corporation. Doubtless the Priory buildings were at the time of the dissolution of the Abbey turned into residences, and a good deal of sixteenth century work was introduced for comfort, if not embellishment. Much of the original Norman work, however, still remains, and, despite the fact that the buildings were for many years degraded into tenements, the skilful and painstaking work of Mr. Lewis Tonar has brought the apartments back to a state closely approaching that of the monastic days. What remains include the ribbed vaults, the kitchen (with a pair of fireplaces each ten feet wide), with the lay brothers' dormitory overhead; the timber-roofed guest hall (a fine room 40 feet long, with sixteenth-century windows and fireplace and a massive oak screen), with guests' dormitory adjoining, and two little rooms in a tower 30 feet high. Many interesting fragments of stone-carving, some of Norman date, have been found and preserved. Such addition as has been imperative has been made from local material, doors and windows having been provided from old houses in the city lately demolished. Mr. Burman Morrell, master of the School of Art, has restored portions of an original frieze. Mr. Harold Brakspear, F.S.A., upon whose advice (taken at the suggestion of the Royal Commission on Ancient Monuments) the restoration was undertaken, accompanied the party in a tour round the building and succinctly explained it.

### NOTES AND COMMENTS.

THE latest suggestion in Liverpool as a counter-blast to Sir William Lever's proposal of free land for private building enterprise is introduced by some rather stupid argument or assertion as to the cost of land and of building. Whether land costs £100 or £500 an acre and whether the building costs three-quarters or some other fraction of the total expense of a home is immaterial in view of the fact that no one can build cottages nowadays to let at an economic rent, or at what in pre-war times has been considered the possible rent which a cottage-tenant can afford. Hence the cottage-tenant has to be subsidised somehow. Sir William Lever's position as an expert of great experience in cottage building is that the cheapest way of subsidising is for the community to assist private enterprise. The latest counter-suggestion is that the thousands of soldiers' hutments now in use in this country should be town planned and converted into two, three, or four-roomed bungalows for family use. As a temporary expedient we may be driven to wooden houses, and there are plenty in existence, a couple of hundred years old, to prove that they need not necessarily be so very temporary as might be supposed.

The primary cause of the present shortage of housing accommodation is well enough understood by those who have studied the subject, and an important step has been taken with a view to urging upon the Government the necessity for prompt action in regard to the question. It having been agreed that the time had arrived for a discussion to be initiated on the subject of shortage of housing accommodation, especially as to the provision of dwellings for the working classes, a conference was held at the Law Society's Hall, Chancery Lane, W.C., the object being to secure the removal of the disabilities under which the housebuilding trade lies at the present time, and of restoring the credit of house property so that the industry may be brought back to its former position. There were present representatives from forty of the leading associations and societies in the land. The chair was taken by Sir J. F. L. Rolleston, the other conveners being Mr. Edwin Evans, of London, and Mr. A. W. Skelton, of Nottingham. After a discussion, which was of a high tone in character, a resolution was submitted on the proposition of Mr. Edwin Evans, deputy-chairman of the London County Council Housing Committee, and seconded by Mr. E. Russell Taylor.

The resolution in question was in the following terms: "That this conference (convened by Sir John Rolleston, F.S.I., Edwin Evans, L.C.C., and A. W. Skelton, F.A.I.), of representatives from upwards of forty leading professional and business bodies connected with the housing of the people, views with very deep concern the unparalleled shortage of houses, particularly for the working classes, which is daily increasing, and, being of opinion that the original and principal cause of so grave a state of things is both directly and indirectly due to the effects of the provisions of Part I of the Finance (1909-10) Act, 1910, as regards Increment Value Duty, Undeveloped Land Duty, and Reversion Duty, which has largely destroyed the confidence of investors in and lenders upon this class of property, previously regarded as the premier national security, urges his Majesty's Government to take prompt steps to remove the legislative provisions referred to, and to give in every possible way their encouragement and support to private enterprise and co-operative effort in the provision of healthy dwellings for the people."

The text of a Bill introduced in the House of Lords by Lord d'Abernon, a trustee of the National Gallery, in respect of famous pictures, has been published. The memorandum to the Bill, which is called the National Gallery Bill, sets out the purposes of the Bill. It states that the National Gallery Acts of 1856 and 1883 gave the trustees certain powers for the sale and loan of superfluous pictures. The present Bill is designed to extend those powers and facilities in accordance with the principles of the older Acts, and to adapt them to the needs of the present day.

In promoting the Bill the trustees have two ends in view:—

(1) To meet the general feeling that certain famous masterpieces in English private collections should not be sold out of the country, but should be preserved for the nation. The Bill will assist the trustees to provide funds for this purpose by the sale of works by masters who in course of time have come to be over-represented in the national collections.

(2) To establish by the loan and exchange of works of art a closer artistic intercourse with the galleries and museums in the provinces, in the Colonies, and other parts of his Majesty's dominions, and in allied countries. The existing powers of the Gallery are quite unequal to the demands of the present day for extending the connection with kindred art institutions at home and abroad.

Active steps are being taken with a view to effecting, if possible, the conjoint housing of certain of our scientific societies on the lines referred to at the recent meeting of





ARTS AND CRAFTS EXHIBITION.—VIEW IN PRINTING AND LITHOGRAPH ROOM.

the Iron and Steel Institute. The present proposal is that four of these societies respectively, the Iron and Steel Institute, the Institution of Mining Engineers, the Institution of Mining and Metallurgy, and the Institute of Metals, should combine to the extent of securing a joint building. At present these four important institutions are entirely separate, and not one has its own meeting-hall. If it were possible for these four, and possibly other, institutions to build a suitable house—or engineering societies' building, as it might be called, following the American example—the advantages to the members of the professions concerned would be immense. Not only would there be the great convenience of a common meeting-hall, but there could also be a common library, and there would be, too, a great saving of time in the event of the making of technical inquiries in which one or more of the institutions might be concerned.

In a paper on "The Star in Hagiology," by Mr. J. Murray MacKinlay, M.A., read before the Scottish Ecclesiological Society, beginning with the legends and customs associated now and in earlier times with the Festival of the Epiphany or Twelfth Day, otherwise known as the Feast of the Three Kings and the Feast of the Star, Mr. MacKinlay referred to the Mediaeval Orders who bore the emblem. He pointed out that while the Order of the Cross Bearers wore that of Bethlehem, those of the Order of the Star, founded by King Robert of France in 1022, carried theirs in honour of the Blessed Virgin, whom they styled Lady of the Star and Star of the Sea. While the Star of Bethlehem holds the first place in Christian history, there are many references to connections of stars with saints; and into these Mr. MacKinlay went in detail, citing St. James the Great,

one of the Apostles, the resting-place of whose relics was said to have been discovered through the agency of a star, and then proceeded to speak of later saints with star associations. Between the sixth and the sixteenth centuries fully a dozen of these were noted, beginning with St. Aedan, better known as St. Madoe, to whom St. Madoes in Perthshire is dedicated, and including St. Bruno, who settled in the valley where later was built the Grande Chartreuse, the first house of the Carthusian Order; St. Dominic, founder of the Order of Preaching Friars, which was introduced into Scotland by Alexander II., and had fifteen Dominican houses there in pre-Reformation times; and, finally, St. Peter of Alcantara, the Spanish Franciscan.

The precedent which has been set by the delivery of a lecture by Mr. Raymond Unwin on "A Town Plan for Dublin," which, in effect, was an explanation and criticism of the competition recently held and of the designs therein submitted, is one that we think might, with advantage to the art of architecture and the public appreciation and comprehension thereof, be very frequently followed. At present, when a competition is held and the drawings are exhibited very few of the general public except friends of the competitors care to visit the show. Not entirely because they take no interest in the new building that is to be erected, but because they are unable to understand or appreciate the meaning of the drawings put before them.

We cannot be surprised that protests both from the workmen and the master builders have arisen as to the apparent capriciousness with which some private building

work is being allowed and other is prohibited by the Ministry of Munitions; but there would appear to be some idea of local demand by Government work that influences the pundits. At least there is a clear desire that all the building labour in the country should be available for Government work at any place and any time. If this is really necessary for the winning of the war why does not the Government commandeer the lot of us, instead of making half-hearted suggestions?

A correspondent of the "Morning Post" makes a suggestion in regard to Burlington House which we cannot but fancy is more than half ironical. The Government, he says, in their search for new premises for carrying on war work, and for clearing up the mess when the war is over, have already cast covetous eyes and hands on some of the largest hotels and clubs in London. Lord Lincolnshire told the dissatisfied Liberals that search had been made all over London to find a building which would suit the Government needs, and only as a last necessity the National Liberal Club on the Embankment had been commandeered. Yet all this time, and since then, a large part of Burlington House has been standing comparatively idle. Surely the time has gone by when learning can remain completely detached from the practical affairs of life? At present part of this huge building in Piccadilly is given over to the work and exhibitions of the Royal Academy, and another part to the work of the Civil Service Commission. The remainder, that is, the portions standing east and west of the central square, is in the occupation of half a dozen societies, each of which in times of peace does splendid service to the State by its encouragement and advancement of learning. The Royal Society comes first, and then the Geological, the Chemical, the Linnean, the Astronomical Societies, and the Society of Antiquaries. A generous Government have for the past forty years granted free accommodation to these societies in Burlington House. The societies pay no rent; to them the visits of the tax-collector are unknown. All this, as has been admitted, may be laudable in time of peace; in time of war, when the Government are searching in all directions for new business premises, it is difficult to withstand the view that Burlington House could be put to a fuller and a better use. The respective meetings of these societies occupy perhaps two hours in each week, and for the rest of the time the apartments are given over to the various staffs, and to the use of members who may happen to drop in at odd times. But for the greater part of the week the premises are vacant, while the Government are searching north, south, east, and west for room to hive their ever-growing army of officials. If it be contended that the work of each society is essential—that the war would be lost to us if the geologists did not deliberate on the latest output of fossil bones from Calaveras County—it may be pointed out that none of the societies meets more than once a week. That being the case, why should not the whole of the meetings be arranged in one set of apartments, giving one night per week to each of the societies? By such an arrangement as this a substantial amount of room might be given up to Government service.

A proposal is on foot, says the "Scotsman," to restore the famous church of St. John, Perth, the one remaining monument of the city's antiquity. At present the building is divided into the East, Middle, and West Churches, with three distinct congregations and ministers. Owing, however, to the calling up of ministers for military duty, a working arrangement has been made by which the congregations under the Rev. P. R. Landreth, West Church, and the Rev. J. McGlashan Scott, Middle Church, have recently been combined; and the respective kirk sessions have applied to the Presbytery to be allowed to proceed with a complete union, while the Town Council is to be consulted regarding the demolition of the wall between the two buildings. The larger proposal is also in view of removing the partition wall between the Middle and East Church buildings as well, but meantime the restoration

plans apply to the West and Middle Churches only. The church is believed to be of Pictish origin, and is mentioned in the Royal Charters of the twelfth century. At Communion seasons the kirk session of the Middle Church use regularly a cup received by Queen Mary from the Pope, and gifted by her to the Church of Perth. The cup is, perhaps, the most interesting piece of church plate in the country. On May 11, 1559, John Knox preached a violent sermon which resulted in every ecclesiastical building in Perth, except St. John's Church itself, being destroyed. Prince Charlie was the last royal personage to worship in the ancient church of St. John, it being the only Protestant church attended by the Pretender. The bells are the oldest and probably have the most ludicrous peal in Scotland.

## ILLUSTRATIONS.

### HOUSE AT SHOTTERMILL, SURREY.

EXTERNALLY the house is built in many tinted bricks, with all the woodwork oak. Inside much of the woodwork is oak; the hall and dining-room are brick paved.

The builders were Messrs. Chapman, Lowry & Puttick, of Haslemere. The architect was Mr. E. J. May, F.R.I.B.A.

### WIMBORNE ROAD COUNCIL SCHOOL, PORTSMOUTH.

THESE new school buildings have been erected for the Elementary Education Committee of the Portsmouth Town Council from the designs of Mr. G. C. Vernon-Inkpen, F.S.I., M.S.A.

The site is about one and a third acres in area, and is situated in a rising suburb in the north-east district of the town. It possesses two road frontages, from each of which entrances to the respective school blocks are provided.

Teaching accommodation is provided for 400 boys, 400 girls, and 400 infants; also in each department additional accommodation is provided for twenty pupil teachers for instruction in practical teaching, making a total of 1,260 pupils provided for within the buildings.

The schools are planned on the corridor principle, the class rooms being arranged on each side with windows east and west respectively. Each department is arranged with eight class rooms and one assembly hall; separate rooms for mistresses, teachers, and student pupils are also provided.

The boys' and girls' school is built as a two-storey building, and the infants as a single-storey block; they are detached. The ground-floor class rooms of the boys and infants' schools are arranged with casement doors opening on to the tar-paved playgrounds, which are intended to be used for open-air teaching.

The girls' school is the upper floor of the two-storey block, at each end of which large flat roofs are provided for open-air teaching, the area of each flat being equal to that required for two classes.

The school is substantially built with brickwork faced with red bricks and stone dressings, the roofs are covered with slates and lead, the flats are asphalted. The whole of the internal walls are faced with brown salt-glazed bricks as a dado; above the dado they are plastered in "Sirapite" and distempered. No projecting mouldings are introduced; all the angles of the doors, windows, and piers are rounded, as are those against the intersection of the floors and walls.

All the floors are on concrete. Those of the assembly halls, class-rooms, and teacher's rooms are finished with pitch-pine blocks, the remainder with "Granolithic." The upper floors of the girls' school and flats are constructed in reinforced concrete, and the latter finished with an asphalted surface. The staircases are constructed in reinforced concrete, having rounded nosings and sunk grooves for non-slipping.

Cross ventilation is provided in all the assembly halls and class rooms. The windows of the assembly

class, and cloak rooms are the ordinary "hung sashes and frames" type, fitted with the architect's "Vernon" patent hopper ventilators; they are quite a success. Over the sash windows and casement doors transom lights are provided; also corresponding transoms are arranged above the corridors for cross ventilation.

Two cloak rooms, each with 200 numbered hooks on lattice iron open framing, are provided for each department, also ranges of lavatory basins are fixed in each; the floors are finished with asphalt, laid to falls for washing out. The demonstration class rooms, hot-water heating, and also the "open-air class rooms" as adopted were the subject of alternative plans.

The caretaker's cottage provided within the site is arranged with five rooms, bath, and usual offices. Sanitary conveniences faced internally with white glazed bricks and similar slabs are provided for each department, and up-to-date fittings have been used. The sanitary blocks are screened from the public roads by the playing sheds intervening between them. Tar-paved playgrounds, allowing 30 ft. super per child, enclosed by open-iron fencing, are provided to each department. Three covered playing sheds are provided, each 40 ft. by 20 ft.

Electric light has been installed throughout the school buildings, with gas jets for use in case of emergency at the exits only.

The building has cost over £20,000, exclusive of fittings. The contract was entered into in August 1914, and the works are now completed; a slight delay in obtaining materials was caused owing to the war in several instances.

The building contract was placed with Mr. Frank J. Privett, of Portsmouth.

### NEW AIMS FOR COMMERCE.

By far the largest audience which has yet attended the discussions arranged by the Arts and Crafts Exhibition Society at the Royal Academy was present on the 14th inst., when the subject was "New Aims for Commerce." It was held in the spacious "Hall of Heroes" instead of in the much smaller "University" Room.

The chairman was Sir Kenneth S. Anderson, K.C.M.G., who was a member of the Departmental Committee on Royal College of Art (1910) and of the Advisory Committee for Education in Art (1913). As a successful business man he was well qualified to be believed literally when he said that the subject was not merely academic, but one of intense practical importance to every individual. He agreed with the usual facile prediction that things were going to be very different after the war, though he was not sure whether the change would be for good or evil. That depends upon the nation and the amount of hard work people are prepared to put in. The best ground for optimism in the outlook lay in the general realisation that everything was not as it should be with our industries. Industries have decayed which ought not to have decayed. Fortunately there is now a desire to effect closer co-operation between science and industry, and it is badly wanted. Indeed, there is a danger that at the moment when the relationship between science and industry is being so abundantly realised the importance of the relationship between art and industry may be overlooked. By art he meant the quality which was inherent in appropriate design founded upon good workmanship. False distinctions have tended to divorce art from utility and everyday life. Given appropriate design and good workmanship, the more emotional qualities of art will follow. Just as it has been said that "if you want to be happy you must not think too much about being happy," so with art. Honest art was good business—a fact found out by our competitors long ago. He dissented from the view that large-scale production was necessarily inimical to art. Man made machines, not machines made man. And there seemed no reason why man should not remain

master of the machine. A machine was only a more complex tool with certain limitations. To-day was the opportunity for the artist, who, through the medium of machinery, can speak to the whole world instead of to a privileged few.

Mr. Roger Fry spoke as an artist and on a less practical plane. He deplored that to-day machines seemed to be getting control of man, and that it was not yet known what machines could do with advantage and what they could not. The potter's craft, for example, seemed on the verge of extinction; in the Potteries there was hardly a single potter's wheel still running. Unless there was delight in the making of anything there could be no delight in the long run in the contemplation of it.

Mr. C. F. Sixsmith, of Manchester, said that when one looked at the proposals for remedying the present state of things one felt disappointed. Nothing was heard about the development of industrial art or the more artistic development of the worker. Last July the Government held in Manchester an exhibition of German-made goods: the bulk were of the cheap and nasty order. The official in charge told him that 90 per cent. of the world's trade consisted of that kind, and that English manufacturers must do the same if they wished to capture it. Surely they were not going to imitate the Germans in that respect? If English commercial men could all be imbued with the aims of the Design and Industries Association there would be nothing to fear. Better workmanship and a better article should be the first consideration—price a secondary. Bad art was really wasteful in the case of most things made to-day. What is needed is the spirit of the craftsman. Personally he believed that the machine-worker has far greater powers of artistic production than is generally supposed. Craftsmen did not realise the possibilities of machinery. It could for one thing save an immense amount of human drudgery. On the other hand, commercial men were too apt to set machines doing work which should be done by hand. There was a danger of becoming slaves to machinery. The effect of modern industry has been to smother the human element. The problem was how to get more personal expression into machine-made goods.

By JOSEPH THORP.

THE new ideals of commerce may be summed up as an attempt to make beauty and high quality go hand in hand with ingenuity and production in bulk. "Not by bulk alone doth man live."

And why beauty? It must be taken as an axiom—as has been so finely developed in Mr. Clutton Brock's "The Ultimate Belief"—that there are three fundamental hungers of the soul, the hunger for goodness, for truth, and for beauty. Starved of any one of these, man is only imperfect man. Beauty is not an extra ornament of life, but should be woven into its very fabric. If anyone does not see the illimitable waste of character, of opportunities of development, from, for instance, living in squalid streets, he is past praying for, and we are not dealing with such.

When we come to distinguish beauty, however, we encroach on the question of taste.

The recently formed Design and Industries Association limits itself to this aspect of the question: fitness in the making of things. Good design means primarily fitness for use. This axiom does not answer every difficulty, but it answers a good many. The page of a printed book is ill-designed if there is anything to detract from its legibility. A fussy, twirly letter is bad because it is less legible. A modern business building designed so that the windows are small and therefore the light excluded is badly designed, and so forth.

Turning to the *personnel* involved in this campaign for beauty or right design in industry you have four classes of folk: the artists, the manufacturers, the buyers, and the public. It may be profitable to offer certain words of blame to each of these classes in turn.

The artist in his relation to industry, to production in bulk, is often negative and obstructive. Surely his real



function is to come in and help, not to stay in the wilderness as a superior person, producing single things separately with his nice, fair, and competent hands? We see no limits to his gifts in this direction, and it might be profitably pointed out to him that constitutionally he is by temperament and condition in the main socialistically inclined. He should remember that Morris and the distinguished people he gathered round him were practical Socialists to a man. He ought not to shirk bringing beauty into the homes and lives of what we are pleased to call the masses instead of sitting apart and working for a few rich patrons. Take the mere question of cigarette ash-trays. Your artist is apt to get into the habit of thinking that such things should be beaten out of precious metal with loving strokes of the hammer and punch. We want to say to him that there are more people smoking cigarettes than can afford to buy hand-wrought trays; and if dies of such a high standard of quality and sanity of design as appear in the exhibits of the Birmingham School of Handicraft be made, a beautiful thing can be struck from such dies, and we submit it is only hypersensitiveness which prevents them throwing themselves into the creation of such things. A familiar example will demonstrate how completely the artist can use the machine and convert it from a mere machine into a tool. You have the printing press. Granted that a well-designed type is chosen; that good paper is used; that the design of your page, with its just apportionment of margin, is sound; that the illustrations are the work of accomplished hands, with good ink and competent photo-mechanical engraving; that those splendid fellows the compositors and machine-minders are up to their work, there is no difference that can be perceived by any but an expert, between the hand-printed book of the Doves or the Ashendene Press and work from the Wharfedale or Miehle. Can you not imagine the scribes and illuminators of Caxton's day holding an indignation meeting to protest against "this vulgar person" who was coming to degrade their art and to make the treasures of literature available for all instead of confining them to the clerical profession and a few eccentric noblemen? Surely no artist dare rise up and say it would have been better for the world if Caxton had not been born. We see no reason why artists should not revolutionise and control the production of those abominations in the way of furniture that emanate from the Curtain Road. And so of a good deal of the rest of production in bulk.

Our second charge against the artist is that he is inordinately suspicious of the manufacturer. We will not go so far as to say it is entirely without reason, and certainly do not assume that the fault is only on one side. The manufacturer on his part does not understand the artist; does not realise what he owes him, what we all owe him; does not like his unbusinesslike ways; his lack of punctuality; his erratic temperament; the cut of his clothes; the immensity of his ties; the length of his hair. It may be submitted to the artist for consideration as to whether in his business interviews it would not be well to discard the garments of his choice when he enters the City to talk business with the merchant or manufacturer. Let him don a bowler hat and a two-inch collar and its appropriate accompaniments, just as he would don a Court suit for a Levée.

When we come to the manufacturer we must preach to him a greater tolerance towards the men who are, if we are to discriminate nicely between a higher and a lower type, his superiors. The artist stands with the priests, prophets, and poets as makers of the salt of life. It is for the manufacturer to recognise the real man, competent, creative, indispensable, under the battered hat and through the home-spun tweeds, if the artist refuses to take our advice and chooses to present himself for the interview in that guise. The manufacturer must also learn to treat him fairly. In the matter of copyright, for instance, some scandalous things have been done. And if a new law is impossible—a new code, we are sure, is attainable, a code which will recognise the artist's right to his own designs, a living wage, and a permanent royalty on those designs.

And then again, our manufacturer needs courage to experiment. Mr. Frank Brangwyn was asked by the speaker why he did not design a carpet. His reply was that no British manufacturer had ever offered him more than ten guineas for any design, whereas a German manufacturer had recently been into his office and apologetically offered him two hundred guineas as a fee for a design for a carpet. It is not only by sharp practice that the enemy has increased his production in bulk during these last fifteen years.

The buyer is really the villain of the piece, wicked not through perverseness, but through ignorance and lack of education. At no point in his career, built upon a truncated and entirely inadequate education, has he ever had a chance of developing the kind of taste and judgment to be a suitable medium between the producer on the one hand and the customer on the other. He is concerned only with the turnover of his department. He buys by the many gross in order to buy cheap, and he relies upon the hypnotism of "We are selling a great deal of these this season, madam," to unload his stock of abominations upon a pathetically unresisting public. In our more despairing moments we feel that the sandbag is the only cure for the type as he exists to-day, and a radical change in national education the only hope for the building up of a finer type in the future.

And then with regard to the public, it is obvious that there must be something the matter with people who allow the consideration that "We are selling a great deal of these this season, madam," as an argument why they should purchase. The public—of course, there is no real entity the public, but rather a collection of separate units of sharply defined individual tastes and preferences—the public is also at fault. We do not think out our position with regard to beauty, especially perhaps here in England. Our great national Valhalla in Westminster Abbey looks very much like a stonemason's yard. We accept without a murmur a theatre which is the laughing stock among the other nations in Europe. We have allowed the Central Powers—Germany and Austria—to steal the fine ideas of our great individualists in craftsmanship and offer them to their publics, while we remain, as a public, indifferent. The whole outlook would be depressing beyond endurance were it not for this fundamental principle that the good, when set alongside the bad, always prevails, not steadily and consistently, perhaps, but in an upward, faltering, and spiral zigzag. The first thing for us to do is to recognise the importance of this whole question of right design and the introduction of beauty and fitness into our daily lives, into all our daily lives, not into the lives of the precious and cultured. And after that there is a job of work to be done to put into practice the principles which such a consideration will bring to light. We might say to you of the public that it is your duty not merely to see you buy the beautiful rather than the ugly thing, the serviceable rather than the useless, the few good rather than the trivial and ill-wrought things, but that you should positively, when you have seen the light, flash that light in the eyes of salesmen and buyers as your part of that job of work we have in hand. Why not, for instance, when you see upon the counters of our "fancy" goods shops (what a degradation of a noble word!) something quite abominably unfit and useless—for instance, a hairbrush made of pitch, covered with so thin a lamina of silver that your finger nail will dent it; the kind of thing you foist off as wedding presents upon poor relations—say to the salesman who has the impertinence to offer it to you, very politely and blandly, "Could you kindly tell me why you stock such peculiarly offensive things and what there is about me that you should think you can offer them to me without insulting me?" This might not exactly make you popular, but it would unquestionably help.

PROFESSOR A. BERESFORD PITE, F.R.I.B.A., is going to deliver four Cantor Lectures before the Royal Society of Arts on "Town Planning and Civic Architecture." The dates are January 29, February 5, 12, 19.



**ARTS AND CRAFTS EXHIBITION.—VIEW IN TEXTILES ROOM.**

#### **THE ARCHITECTURAL ASSOCIATION.**

A SPECIAL general meeting of the Architectural Association was held at No. 37 Great Smith Street, Westminster, S.W., on Monday, November 20, 1916, at 4.15 P.M., Mr. Henry M. Fletcher (vice-president) in the chair.

The secretary having read the minutes of the previous meeting, which were confirmed, the chairman proposed a vote of sympathy to the relatives of members who have fallen in the war since the last meeting on May 1:—Messrs. W. H. Hillyer, D. J. Gordon, N. W. Hadwen, P. G. Mosse, L. S. Ford, A. E. Corbett, J. H. Hopewell, A. E. Vey, A. B. K. Cook, F. D. Sowerby, J. S. Huxley, Alick G. Horsnell, W. C. Butterworth, W. A. Stanhope Forbes, B. G. Bowles, Philip E. Webb, R. M. Haig Philp, J. H. Taylor, G. W. Stuart, and F. S. Chesterton. The motion was carried in silence.

The following gentlemen were nominated for membership:—P. R. Udvardia, A. H. Basto, Rowland Tillett, C. E. Cat, C. M. Master, and E. B. Morley.

Vacancies on the Council were announced by the chairman—namely, the hon. treasurership caused by the resignation of Mr. F. Winton Newman on account of his having joined the Royal Naval Air Service, and that of an ordinary member caused by the death of Mr. Philip E. Webb. Nominations for candidates to fill these vacancies will be received at the next general meeting, to be held on Monday, December 4, at 4.15 P.M.

The meeting then terminated.

#### **NORTHERN ARCHITECTURAL ASSOCIATION.**

CAPTAIN R. BURNS DICK, R.G.A., occupied the chair as president at the annual meeting of the Northern Architectural Association held on the 15th inst. at 6 Higham Place, Newcastle, and, in his address, spoke of the influence of present events on the citizens' attitude towards the "City Beautiful."

Though the war had produced the disastrous effects for the profession to be expected from the curtailment and uncertainty imposed on all peaceful industry, it had, unfortunately, been found necessary to put a stop to much of the work that was left to them in order that the output of munitions might not be interfered with.

The President alluded to the death of Mr. J. W. Taylor and of Mr. J. W. Dyson, and expressed sympathy with those who had been bereaved through the war. Terrible as seemed the price we were paying, he had a full conviction that posterity would not consider it too great for the results achieved. He believed that the changes which would be wrought by this conflict in every domain of our national life would be vaster and more far-reaching than any had any conception of.

"In my last address," the President continued, "I advocated the establishment of what I called 'Fore-sight Committees,' and I still think much might be accomplished in the meantime by each of us constituting himself, if only as a hobby in his spare time. I must also reiterate the views I expressed as to the tremendous effect that the new methods of warfare will undoubtedly have upon the actual form and construction of buildings and the laying out of residential and industrial areas. I

am convinced, though none of us is likely to see the particular 'set' it will assume, that this is the dawn of as distinctive an era in architecture and the arts as any of the well-defined periods in history.

"But whilst I am emphasising the part that the developing science of warfare will play in this dawning new era, I do not wish to suggest that that is the only factor in the change that is coming, though I believe this war to be directly responsible for launching the new order of things, for I believe it will materially change the citizens' outlook in a way nothing else could have done. One of the things to which the sordidness of the surroundings and atmosphere of industrial life may be largely attributed is the inability of the people themselves to see that there is a solid and substantial return to be obtained from expenditure on spacious, healthy, and beautiful surroundings in the centres where they work and live. Its practical and remunerative value, to put it on no higher basis, has been clearly demonstrated by such far-seeing men as the founder of Port Sunlight.

"I have only to take our own city as an example. We have more than once heard a city father with pardonable pride refer to this as 'no mean city.' A no mean city, indeed! Whilst that remark points to the many-sidedness of the city's life, its distinguished citizens, its position as a centre of culture and learning, and its great industrial position, it also visualizes the imposing thoroughfares and buildings of which the city may justly boast. Now, take away the work of that far-seeing citizen, Grainger—work that owes its nobility of form to Dobson, his equally great architect—and what remains of our boasted city? How much is there left of which one would boast? Yet 80 years have elapsed since Grainger's fine work came into being.

"Since then city improvements—some on a large scale—have had to be undertaken to meet the growing traffic and business demands; great opportunities have offered themselves to continue the work of Grainger; and a people prosperous enough to bear the burden has not been wanting. With what results? With all our boasting of our fine streets, there has not been, since Grainger's time, one single instance of the many thoroughfare improvements and extensions undertaken having in any way approached in spaciousness and dignity those constructed three-quarters of a century ago, when failure to foresee the enormous growth and nature of the traffic that would crowd our streets might have been considered excusable.

"It is the people themselves," the President went on to say, "who are responsible, and it is our business and the business of those who are devoting time to the study of better housing and town planning, to foster and encourage an appreciation of the moral and material benefit that will accrue from an improvement in those vital matters of civic life. Nothing but a cataclysm would have the desired effect, and that cataclysm is here, and is in process of working that change in the perception and outlook of the people themselves, from which great things can confidently be looked for."

On the motion of Mr. Charles S. Errington, A.R.I.B.A., the president was thanked for his address.

**THE** death of the Rev. R. M. Serjeantson, M.A., F.S.A., rector of St. Peter's, Northampton, took place at the residence of his father, rector of Acton Burnell, near Shrewsbury, last week. Mr. Serjeantson, who was fifty-four years of age, had been rector of St. Peter's since 1906, and previously for nineteen years he was curate of St. Sepulchre's, Northampton. He was a great authority on Northamptonshire ecclesiastical buildings, on which he had published many books.

At the request of the Ministry of Munitions an exhibition is about to be held at the Guildhall Art Gallery of the drawings recently executed by Mr. Joseph Pennell, illustrative of the work now in progress at the great munition factories and foundries in the kingdom. The exhibition will continue until the close of the year. Afterwards the drawings will be exhibited in the chief provincial cities, and finally in Petrograd, Rome, Paris, and New York.

## ART IN LONDON.

### MR. BRANGWYN, BELGIUM, AND THE CATACLYSM.

A WORK on Belgium by Messrs. Brangwyn and Hugh Stokes, which has been published for the benefit of the Belgian Red Cross, is one of the many generous and graceful acts to which the present war has given rise. Mr. Brangwyn's drawings here shown were prepared for reproduction as wood-blocks in illustration of the book referred to. The exhibited lithographs are also gifts to various funds, and the whole exhibition is thus a monument to Mr. Brangwyn's sympathy with the country where he was born.

Though his birthplace was Bruges, Mr. Brangwyn is an Englishman and the son of an architect, and consequently we have especial pleasure in referring to his works. They show a power of expression of architectural qualities to a large extent, though too often the "hatching" and technique detract from the final pictorial effect. No. 23, showing the Grand Place, Brussels, is architecturally very satisfactory, and so too is the old wooden house at Ypres; for architectural effect, too, the drawing showing the interior of the church at Dixmude is also noteworthy. We hope in our next issue to reproduce the two last-named, with grateful acknowledgment for the permission accorded to us. In some of Mr. Brangwyn's work there is an unfortunate melodramatic display which even the drama of the war cannot render palatable; we refer more particularly to "Enlist," for in most other instances, after all, the artist has more satisfactorily co-ordinated art and the tragic drama of this fateful Armageddon. Mr. Brangwyn is always virile, but his energy at times runs riot in his accessories; in "Huy," for instance, what is the meaning of all the "quill-pen" business, which destroys repose and lacks relevance? And in "Landing Men from a Naval Fight" (31), and in No. 67 and others this coarse hatching is very destructive of pictorial requirements. Speaking generally, we found that where we noticed such lapses the results as reproduced in the published book thoroughly justified our criticism—and so, too, in regard to the more numerous drawings which satisfied our views. Attention should be directed to the two very powerful cartoons, "Orphans of the Army," No. 34, being particularly fine in conception and treatment. "Germans in Belgium" is an illuminating example of the legitimate expression in art of a tragic drama. Writing the word "Belgium" induces a criticism—an animadvertence one too—against the lettering for that word on the frontispiece of Messrs. Brangwyn and Stokes' book; this admixture of capitals and small letters is unwarranted, unjustifiable, and debased. "Refugees leaving Antwerp," "The Calvary of St. Paul, Antwerp," "Pont des Baudets, Bruges," are amongst those deserving of special notice.

### THE ROYAL SOCIETY OF PAINTERS IN WATER COLOURS.

It is pleasant, during these days of war, to encounter an exhibition where the subject of war is practically ignored; for, with the exception of "A London Street Scene" (a childish contribution by F. Cayley Robinson) and "1916" (one of two incomprehensible fantasies by Mr. Byam Shaw), the titanic conflict is not referred to. Granted that a strong subject may produce strong pictorial treatment, but Press telegrams and photographs, supplemented by such special exhibitions as appertain entirely to one of the theatres or one of the aspects of the struggle, may well satisfy any public demand for the sensational. Apropos of subject, a remark of Goethe's may be fittingly recorded here: "What can be more important, and what is all the science of art without it? *All talent is wasted, if the subject is unsuitable.*" This should be the text perpetually in the mind of artists, who too often regard the first object confronting them as lawful prey, irrespective of its subjective value.

But not in the present exhibition is this fault apparent, and we will proceed in our review, unshadowed by this



defect. Mrs. Allingham's work is on this occasion below par, though its market value is still high; but an artist whose style has very much in common with that lady's is in very good form, and Mr. Arthur Hopkins may be highly congratulated for his excellent work; particularly attractive is "A Breezy Corner" with its creamy waters, lichened rocks, and its focus of interest in the girl with the basket; his Alfriston studies, too, are very charming. Mr. Barratt's "Mosque Door, Algeria," has the values of texture sympathetically rendered. Mr. Henshall is also slightly below his usual gauge, but we can fully commend to notice "Hush." Mr. Albert Goodwin's forte is the expression of "mystery"; the quality is to be seen in "Lighting the Beacon Fire," "The Winter's Tale," "The Day's End" and others; "The Day's End" shows mere slaty greys and the spume of water with the red sun as focus, but what a fine effect! Mr. Sims pleases us better than on previous occasions, though his art is rather feeble; "The Necklace" shows a lady, dressed like Eve before the Fall; except that she is apparelled in a pearl necklace; truly an instance of pearls not being cast before swine, as their appreciation is made manifest by this very disregard of personal comfort. The pose of the modern Eve is graceful (even if Milton's poetic lines are not applicable), but the modelling is imperfect. The study for "Cupid and Campaspe" forms a dainty sketch and a delicate colour scheme. Mr. Napier Hemy is, as usual, virile and sea-breezy, and Sir Ernest Waterlow is an artist, always made manifest. Mr. Charles Gregory would do well to import some "vim" into his otherwise charming landscape studies, though we do not suggest that this is necessary in No. 126 ("On the Avon").

Mr. Robert Allan has a very bright and virile touch. Miss Fortescue-Brickdale is not to be congratulated upon her one contribution "Truants"; the effect is extremely stiff, and the girl seems to support the heavy tree-branch on her head and with her hands, as though she were a Caryatid. There is in general too insistent a note in the President's (Mr. Alfred Parsons) work, though we would not wish to deny its scholarly qualities. Mr. W. M. Hale's "Morte Point, N. Devon," is a poem of lyrical silence with its grey-blue waters, golden-brown shore and sunset distance. Entrance into the ranks of the Royal Academy is too often the prelude to deterioration of work; we trust this is not going to be the case with Mr. R. Anning Bell, but his contributions to the Exhibition are very disappointing. The value of much of the work not specifically noticed is of a high order, and there is indeed very little which lends itself to thoroughly adverse criticism.

### TOWN PLANNING IN WALES.

At the meeting of the Town Planning Institute on Friday evening, the 10th inst., at 92 Victoria Street, S.W. (Mr. Raymond Unwin, F.R.I.B.A., in the chair), a paper was read by Mr. T. Alwyn Lloyd, Licentiate R.I.B.A., on the subject of "Town Planning in Wales: with Special Reference to the Development of Hilly Sites."

Wales, said the lecturer, possessed certain peculiar problems which are not the same as those of England and Scotland. Moreover, being smaller in area and less varied in physical character and in the nature of its industries, one can survey the conditions and needs of the Principality more readily than those of a larger or more varied land. The Welsh Town Planning and Housing Trust, Ltd. (of which the lecturer is architect and acting secretary), was established in April 1913 for the purpose of forwarding, by practical object-lessons in Wales and Monmouthshire, town planning and improved housing. In the course of his work Mr. Lloyd said he had visited every part of Wales, and had come to the conclusion that in proportion as Nature has been bountiful with her charms is man's vileness the more deplorable. South Wales is, of course, of the greater industrial importance, and consequently has more immediate need of town planning than North Wales.

Until the comparatively recent rapid development of

Cardiff and the commercial assertiveness of its citizens enabled it to become the capital city, Wales possessed no capital. There has been no centre of national life, and the people were the poorer for this defect. In spite of its commercialism, Cardiff has been able to establish itself as the recognised capital in the best sense from a town planning point of view. While mistakes have admittedly been made in the development of its admirable Cathays Park, whose buildings suffer in that they were erected piecemeal and did not form part of a comprehensive scheme by one great architect, Cardiff's civic centre is a thing of which its citizens may be justly proud. It is an object-lesson in practical civic planning even though not in the best "Grand Manner."

Having said that in praise of the efforts to raise Cardiff to the dignity of a capital city we have said all that can be said as to any deliberate civic planning in Welsh towns. Swansea, Newport, Merthyr, Llanelli, and the other towns of the South Wales coalfield are well known for their lack of planning, and for the poor standard of buildings there obtaining. Wrexham, the largest town in North Wales, is no better. Swansea, in its town hill site, the property of the corporation, possesses a feature which should give it a unique opportunity, if the town will rise to it, of demonstrating to the world how a suburb built on a steep hillside above the town can be practicable, pleasing, and healthy. A few years ago Mr. Raymond Unwin prepared, in conjunction with the then borough surveyor, a very interesting plan for its development. Had Swansea with its glorious sweep of bay (described by Savage Landor as equal to the Bay of Naples) but been developed in the early part of last century, when its industrial era started, on the terrace principle, like some of the old Continental towns, with railway stations, wharves, and works appropriately placed below the sweeping tiers of houses, it might have been one of the most beautiful towns in Britain. Instead of this, Swansea is an excellent example of a large town which has grown haphazard. Its approach from the outer world, through Llandore, is probably one of the most hideous spectacles one could well imagine. Fortunately, the standard in the centre of the town is already being raised in a number of directions.

South Wales, on account of its immense industrial population and the consequent huge population, is the more important part of the Principality. The county of Glamorgan alone contains more than half of the population of Wales, and this has grown from 230,000 in 1851 to nearly 1,130,000 in 1911. These figures convey some idea of the rapid growth of the coalfield, and the golden opportunities for town planning which were presented. Until quite recently no one thought of controlling the development on right lines.

The mining valleys of South Wales are invariably narrow ravines flanked by high hills on either side; the flat spaces in the bed of the valleys are therefore of a minimum width. When one has deducted from this width the spaces occupied by (1) the river or mountain stream, (2) the road up the valley, (3) the railway, and after the colliery surface works and sidings, there is not much space left on the flat land for houses, or for those amenities which in any decent civilisation should surround them. Shops, rows of dwellings, chapels (and their name is legion), and colliery buildings jostle one another indiscriminately along the tortuous main street, with the inevitable public-house flanking each corner block.

From the main street of the valley, branching out at right angles up the steep hillsides, are streets of the regulation by-law width. These streets contain rows of houses on each side built up "against the contours." The builders have been reduced to all sorts of contrivances for saving money, by running the roofs and gutters parallel to the slope of the street or by jumping the ridges down ingeniously. The difficulties of street levels, forecourts, back areas, retaining walls, &c., are multifarious.

The lecturer then proceeded to suggest how these difficult districts ought to be laid out. First of all, the future development of these areas must be tackled in a

very much more comprehensive way. We must think in terms of whole districts of the coalfield instead of in terms of isolated valleys or towns. "Regional surveys" should be undertaken; the lines of main road traffic, railway connections, waterways, and by-pass roads should be laid down before inquiring too fully into the individual town planning problems of the places within the areas of the various local authorities.

A great administrative disadvantage in the valleys at the present time is that the rivers running down the centres of them often form the boundary between one local authority and another, thus producing dual control and a network of problems in administration. In all such cases the boundaries should surely be arranged along the watersheds, on the ridges between the valleys, so that the whole of one valley should come within the jurisdiction of a single local authority.

Perhaps the principal need in connection with the town planning of South Wales is the provision of proper communications between the various districts. It is often half a day's journey by rail or road to get from one valley to another, though the distance as the crow flies may be only a few miles. The construction of a few good connecting roads of suitable gradients would go a long way towards solving this difficulty. Then again, the main "through traffic" roads between the large centres of population should be systematised and improved. They are now often no wider than 15 to 25 feet, whereas they should be 50 to 75 feet wide, to provide proper space for tramways or motor buses and the heavy motor lorries.

Another pressing need which exists in nearly every industrial district is the setting apart of land for open spaces and recreation grounds.

High ground rents or freehold prices are invariably obtained for building plots in the mining areas. The price is governed by the number of houses which an individual builder can crowd on to the site, it being computed that each house can carry from £1 10s. to £4 ground rent, according to size. While it is perhaps not unreasonable to expect that the remaining flat building land in these districts will fetch high prices, the prices which are often obtained for poor sites on the hill sides are altogether out of proportion to their real value. However, landowners, or rather their agents, are becoming more amenable to reason in this connection, provided they are assured of a better mode of development. In one or two instances connected with the Trust's work the landlord has agreed to the principle of dividing the estate into a number of land categories, according to the uses to which it can be put for building; thus the highest ground rent would be allocated to the flattest or most suitable building land. The land more expensive to develop would carry a lower rent, and so on, down to steep hill sides or marshy land, unsuitable for building, which the Trust has been able to obtain at a small nominal ground rent for use as allotments or open spaces.

The conventional by-law type of town development is wasteful and hideous enough when applied to level sites, but when applied to hill sides the results are positively appalling.

It is a significant fact that in a number of Welsh valleys the houses are built on the northern slope; and, consequently, they do not get any benefit from the sun for many months in the year. It is quite obvious that the southern slopes are infinitely preferable, and those promoting Welsh town planning schemes should not omit to take special account of this fact. Houses built on northern slopes of mining valleys in practice have the front room facing the street to due north, and the kitchen-living-room invariably looks on to a dismal black courtyard, formed by the scullery projections, and beyond the courtyard into the excavated area hollowed out of the hillside.

Hillside development, more than any other kind, requires buildings with long frontages and shallow depth rather than the reverse arrangement—which is the common speculative-builder type of plan. Given mode-

ately cheap land, such as one should be able to secure on hillsides, and narrower one-sided roads, there is no reason why schemes with long-fronted, shallow-depth houses, should cost much more per house, including extra land, than the present method of development with wide roads, deep sewer excavation, and so on. The saving in the foundations, steps, and retaining walls, &c., alone ought to be more than sufficient to balance the cost of the wider frontages and the greater lengths of road.

There is a popular delusion widely held that people will not live on the upper parts of the valleys if they can avoid it on account of the fatigue of getting up and down; and even the keenness of the air at these heights is sometimes adduced against building on the slopes. In the case of many of the Welsh districts there is no alternative but to build in the future on the hillside. But even if there were, said Mr. Lloyd, the future is with open sites of this nature, and people will want more and more to live out of the valleys, in spite of some initial disadvantages as to access and so on.

The old method of housing colliers and other industrial workers close to the scenes of their daily toil seems destined to pass away. Colliery owners naturally like men to live near their work, because in that way the men are more tied to the one colliery; but a certain feeling against the practice is growing among the workers. It is not at all uncommon in South Wales to find men living for preference four or five miles away from their work and walking or cycling that distance daily. Hundreds of other men travel by workmen's trains ten or twenty miles.

In the most crowded valleys there is invariably some amount of unspoilt land on the hillside which could be utilised for housing purposes if properly developed. Being away from the more populous parts, and obviously rougher land, it ought to be possible to acquire it on much more advantageous terms than land in the valleys—at a price of, say, £100 an acre. At this price, and with narrower roads, it should be an easy matter to arrange economically for building on the top side of the roads only, spacing out the houses to not more than twelve to the acre, on Garden Village lines.

With regard to the vital question of access to the higher land, there seems no reason why in special cases "cliff tramways" should not be established. It has been found practicable to construct such tramways in our watering-places, and they are only revenue-producing in the summer. At any rate, part of the many hundreds of acres of open ground on the hill tops between the populous valleys might thus be built on. Any rational system of regional town planning would make provision for the spreading out of the population along the hillsides, and also in large separate residential centres on the flatter land below the valleys. An example of such a possibility is the area of open land to the south-east of Pontypridd, and the local council's projected town planning scheme includes this suggestion.

Needless to say, it is quite hopeless to attempt to deal with the town planning of these hilly districts without a drastic amendment of the present by-laws. One or two of the more progressive councils have already moved in the right direction by adopting new by-laws which sanction narrow roads running with the contours of the hillsides, with buildings on the upper side of the road only. But the great bulk of the local authorities in Wales, as elsewhere, insist on the rigid observance of the usual stereotyped by-laws, which were obviously drafted originally for use in flat districts.

The physical conformation of the North Wales coalfield makes it an easier area to plan than South Wales. The colliery districts are in more open situations, and do not present the many difficulties of the narrow valleys in South Wales. There are thus much greater possibilities in regard to roads and sites for housing, but the existing colliery villages are none the more pleasing on this account. For sheer ugliness and dull, sordid monotony it would be difficult, even in South Wales, to find a worse example of urban conditions than those pre-

vailing at Rhos between the towns of Wrexham and Ruabon. Besides the definitely industrial districts there are a growing number of semi-rural and semi-industrial villages in North and South Wales on the fringe of the coalfields. It is of the greatest importance that these places, which are now situated within the jurisdiction of rural district councils, should be properly planned and as much as possible of their rural character preserved.

The planning of rural villages and country towns, said Mr. Lloyd, is almost as important as that of the more populous areas. And for this purpose it seemed to him that the County Council should be a better agency to undertake the work than the scattered and less authoritative rural councils. Improvements of main roads, establishment of building lines along the road and country lanes, and the definite allocation of land for open spaces are some of the matters which require urgent attention.

The towns on the Welsh coast, in contradistinction to the beauties of the coast itself and the surrounding country, are not usually pleasing in appearance. A great many millions of red Ruabon bricks, also yellow bricks and cheap purple slates have been used in the building of the watering-places; and the result is a very garish and uninspiring collection of buildings. The streets again are conspicuous for their lack of trees and greenery. A great deal remains to be done in the way of improving these coast towns, which are visited in the summer by many thousands of people from elsewhere.

In summing up his paper Mr. Lloyd gave the following as the chief points which he would like to urge as being of supreme importance in connection with town planning in Wales:

1. The development of the South Wales coalfield and its attendant shipping ports should be considered as a whole, by means of a "regional survey" or surveys. The special character of the coal-mining industry and of the lives of those engaged in it should be closely studied.
2. Attention should be given to the question of traffic and communication—by laying down the lines of new main and by-pass roads and improving existing ones. Building lines along the main roads should be prescribed without further delay, so as to avoid the necessity for spending large sums of money on future road widenings and other improvements.
3. Town planning should be made compulsory for all districts, who should be encouraged to work out their schemes in conjunction with adjoining authorities, particularly with regard to connecting roads between the valleys.
4. The probable positions of the future collieries on the southern outcrop and other portions of the South Wales coalfield not yet exploited should be thought out and laid down on paper and due provision made for the development on the right lines of the districts adjoining them.
5. Colliery and quarry owners should be compelled to dispose of their surplus rubbish in such a way as not to disfigure the countryside and choke up wide areas by dumping it indiscriminately as huge tips.
6. Building and street by-laws should be drastically amended, particularly in the direction of allowing narrower and "one-sided" roads for the development of steep hillsides and permitting lighter construction for residential roads.
7. Due provision should be made in the most suitable positions on the southern and western slopes for sites for housing purposes. They should not be too near the colliery or works, but convenient to trains or trams.
8. Sites for open spaces and recreation grounds should be definitely allocated. The latter, instead of being on rough ground, as now happens in so many cases, should, of course, be on flat ground.
9. County Councils should be authorised to deal compulsorily with village and rural planning, the laying down of building lines on main roads, improvement in village approaches, and so on.

## THE SURVEYORS' INSTITUTION.

*Arterial Roads.*—Sir Alexander Stenning, representing the Surveyors' Institution, attended the deputation from the Arterial Road Conferences which was received by the President of the Local Government Board on October 31. He impressed on Mr. Long the unanimous opinion of the Conferences that the appointment of a competent authority was necessary, with power finally and definitely to determine any questions which might arise as to routes, expenditure, and similar matters in connection with the provision of arterial roads where conflicting interests existed.

*Fire Prevention.*—Messrs. C. H. Bedells and George Corderoy have been nominated by the Council to represent the Institution on a Special Commission to inquire into the Fire Resistance of Concrete and Reinforced Concrete, which is being set up by the British Fire Prevention Committee under the chairmanship of Sir Henry Tanner, C.B., F.R.I.B.A., F.S.I.

The following circulars have recently been issued by the Council:—

*Income-tax.*—The Council desire to draw the attention of members to the relief afforded by Section 29 of the Finance Act, 1916, in cases where the income for the year is more than 10 per cent. below the amount on which the individual has been assessed, which is ordinarily based on a three years' average. The Section in question enacts:—

"If any individual who has been assessed or charged to income-tax for the current income-tax year claims and proves, in manner provided by the Income Tax Acts, that his actual income from all sources for the year of assessment is less by more than 10 per cent. than the income on which he has been so assessed and charged, he shall be entitled to repayment of such part of any income-tax paid by him, either by way of deduction or otherwise, as is equal to the difference between the amount of the tax so paid and the amount which would have been so paid if he had been assessed or charged on his actual income for the year of assessment."

The Council take this opportunity of reminding members of the earlier provisions for relief in cases of special hardship which were contained in Section 13 (1) of the Finance Act, 1914 (Session 2) and Section 20 of the Finance Act, 1915. These revive the privileges given under Section 133 of the 1842 Act and Section 6 of the Revenue Act, 1855, and entitle taxpayers whose profits are reduced by the war to have the result of the year for which the assessment is made taken into account for the purpose of calculating the income-tax payable in lieu of the earliest of the three years from which the average income would in ordinary circumstances be estimated.

*The Measurement of Variations for Settlement of Accounts under Contracts.*—The attention of the Council of the Surveyors' Institution has been drawn to a practice, which appears to be growing up, of employing clerks of works for the purpose of measuring up variations for the settlement of accounts under building contracts. They are of opinion that such procedure is open to serious objection, and that these measurements should be taken by a qualified surveyor, and preferably by the surveyor who prepared and issued the bills of quantities upon the basis of which tenders for the works were obtained.

A surveyor occupies a position of a fiduciary nature towards the several parties to the contract, who are largely dependent upon his experience, accuracy, and knowledge of the facts, in securing a satisfactory and impartial settlement.

The Council desire to impress upon all members of the Institution and building owners the desirability of doing what they can to insure that properly qualified surveyors should be employed on this responsible work.

MR. H. P. MAVBURY, of the Road Board, formerly county surveyor of Kent, has been given command of the newly-formed road-making battalions for France, with the rank of brigadier-general.



## THE FUTURE OF CRAFT MUSEUMS.\*

By Sir CECIL H. SMITH, LL.D.

HOWEVER difficult it may seem to abstract one's mind from the all-absorbing interest of the present, the contemplation of and the preparation for the conditions which will ensue after this terrible war are necessitated as a measure of common prudence, and this axiom applies nowhere more clearly than in the case of the commercial products of this country. If Great Britain is to keep her place in the sun, it is essential that we should set our commercial house in order now while there is yet time. We have in the past lived too much, so to speak, upon our commercial reputation; we have too long accustomed ourselves to the idea that such commodities as Great Britain chose to produce were obviously superior to those of any other country, while the rest have been neglected as beneath our notice; and the result has been that we have drifted into the position of allowing other nationalities first to snap up these unconsidered trifles, and then to oust us from fields that we thought inalienably our own.

The point I desire to make is that in the strenuous competition which is before us we can afford to lose no opportunity which may present itself of developing and improving our commercial productions; and in this matter the Craft Museum of the future has, in my view, a very important part to play. We have, I am glad to say, left long behind us the stupid popular fallacy that a museum was a stagnant collection of curiosities, and have come to recognise more than ever recently that such an institution is, or should be, a living and a powerful educational force. The name "museum," as I have often felt, is in itself perhaps unfortunate, because, in the first place, it links together a heterogeneous assortment of institutions which cover widely different ranges of function and characteristics, and, secondly, because it suggests something which is bygone and ideal, and, to a certain extent, out of touch with present-day activities. That this is so is, I am bound to say, largely the fault of the museums themselves, and it is one of the drawbacks which we are now trying to live down. It cannot be too often realised that the Victoria and Albert Museum was at the outset intended to serve as a museum of manufactures, to illustrate the application of art to some purpose of utility and to afford instruction and assistance to manufacturers, designers, students, and the public. As time has gone on, this original purpose has, unfortunately, to some extent been allowed to drop into the background. The reason was partly, no doubt, want of space. In its cramped condition before the new buildings were opened, it was impossible even to arrange satisfactorily the priceless collections of the past. The natural result has been that very few products dating later than fifty to sixty years back have been acquired, and thus it might almost be supposed by anyone who knew only the contents of the museum that art had stopped short somewhere about 1860.

With our increased space we have endeavoured to arrange the existing collections as far as possible on educational lines, but even now the expansion of the collections allows very little room for the necessary linking of them up with the products and the requirements of to-day. So far as opportunity allows, we are already doing what we can to make the Victoria and Albert Museum usefully illustrative not only of the finished design, but also of the process which produces it. In order to achieve this, it is essential that all classes who ought to be interested should give us the benefit of their assistance and suggestions. We want to know from manufacturers, as well as from students, how these priceless collections can best be adapted to their requirements. On the technical side I have already to acknowledge the great assistance which I have received from Mr. Burridge, the energetic Principal of the London County

Council Central School, who is helping us in the preparation of a complete exhibit illustrative of book production and book illustration, which will shortly be ready; and here I may perhaps be allowed to say that it is, I think, largely to Mr. Burridge that we owe the enormously important advance which has been made in the direction of educating the salesman. If we are ever to cut the vicious circle which is composed of manufacturers who will not make because the public will not buy, and the public who will not buy because manufacturers will not make, the solution is, I am convinced, in the proper education of the salesman; and that is where a museum like the Victoria and Albert Museum has a great function to perform. I may tell you that in spite of our official guide having been sacrificed on the altar of Treasury economy, we are still able, thanks to the enthusiasm of private individuals, to keep up some part of the service, and our unofficial guide informed me recently that on Saturday afternoons he usually has a large class composed almost entirely of salesmen from the shops in London.

The difficulties of a craft museum in regard to modern production are manifold. Apart from the restriction of space, which, in a large central museum especially, is bound to be permanently with us, I need only indicate two, but they are both pretty serious. In the first place comes the question of selection, because selection for exhibition in such a museum naturally gives a certain cachet to the exhibit, and the disappointed person who thinks that his rival is receiving unwarranted advertisement at the public expense is apt to make it unpleasant for the selector. On the other hand, it is not always easy or even possible to prevent objects in the museum from being pirated, and the museum is therefore frequently debarred from the privilege of exhibiting the newest and most successful design. What is really needed is, I am sure, that the problem should be taken up, as soon as opportunity offers, of providing some institute which shall deal comprehensively with all the pressing necessities which we see every day rising before us in connection with industrial art: not only a carefully selected reference store of the best products of to-day, which shall supplement and complete, and be in touch with the Victoria and Albert Museum, but shall also be that clearing-house of design and of craftsmanship which is recognised now by most of us as one of the most urgent necessities of the present time.

The war has shown us clearly the necessity for co-ordination, the urgent need for economy of effort, and the avoidance of overlapping energies. Beside the Victoria and Albert Museum and, to some extent, in connection with it, we have throughout the country an exceedingly flourishing and active series of municipal and other museums, as well as the local schools of art, of which the interests are, at least for the most part, shared in common. If our energies can equally be directed towards a common aim, a great power for good should, I am sure, result.

I have said very little about the artistic side of the industrial museum, not because I wished in this exhibition of the Arts and Crafts to avoid what is a healthily controversial subject, but because I took the intention of the conveners of this conference to be concerned rather with the commercial side of art, and that aspect of the case is hardly appropriate among the collections here exhibited. I should like, however, to say one thing, and that is that our modern artists have, I think, a tendency to fall into one of two erroneous views as regards productions of the past: either they are apt to wish to break away from tradition entirely, or they allow it to become an obsession instead of an inspiration. While I am sure that slavish copying of antiques is one of the worst evils, on the other hand it is, I think, clear that a closer and more discerning knowledge of what is stored in our galleries would often tend to correct features in modern design which have been misunderstood and which show that what is merely meaningless eccentricity in the modern product has been due to unintelligent inspiration

\* A Paper presented at a conference at the Royal Academy, under the auspices of the Arts and Crafts Exhibition Society.

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1. The first part of the paper discusses the importance of understanding the underlying mechanisms of the observed phenomena. It highlights the need for a comprehensive theoretical framework that can explain the complex interactions between various factors. This involves identifying key variables and their relationships, as well as developing testable hypotheses.

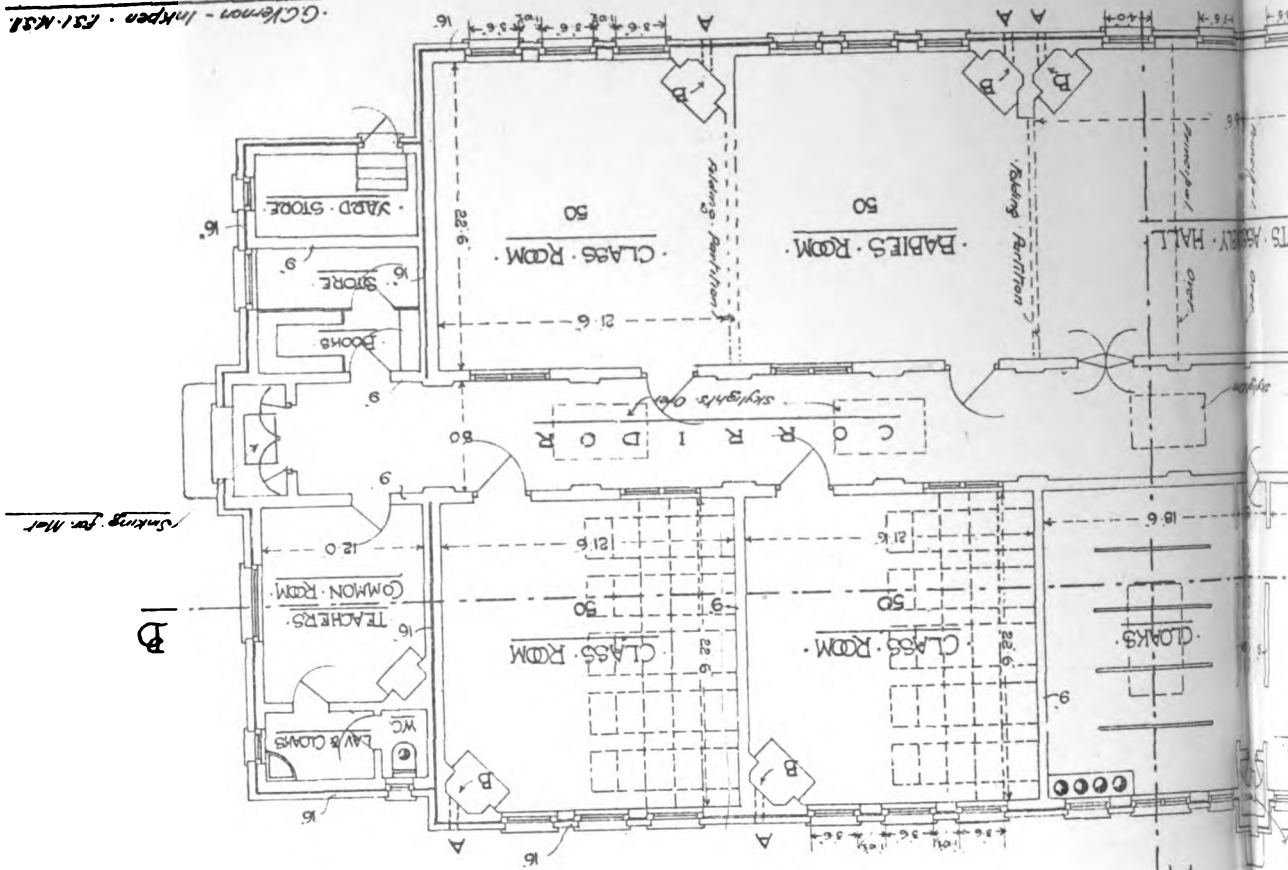
2. The second part of the paper presents the empirical findings from a series of experiments. These experiments were designed to isolate specific components of the system and measure their effects under controlled conditions. The results show significant differences across different treatment groups, suggesting that the proposed model has some predictive power. However, there are also limitations to the current study, such as sample size and potential confounding factors.

3. The third part of the paper discusses the implications of the findings for future research and practical applications. It suggests that further studies should focus on refining the theoretical model and conducting larger-scale field experiments. Additionally, it provides recommendations for how the insights gained from this work could be applied in real-world settings, such as policy-making or industrial processes.

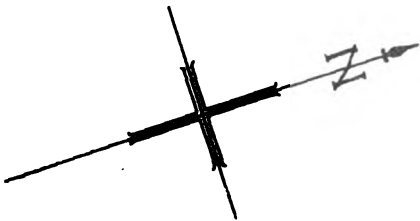
4. Finally, the paper concludes by summarizing the main points and reiterating the significance of the research. It emphasizes that while there is still much to be learned, the current findings provide a solid foundation for further exploration in this field.



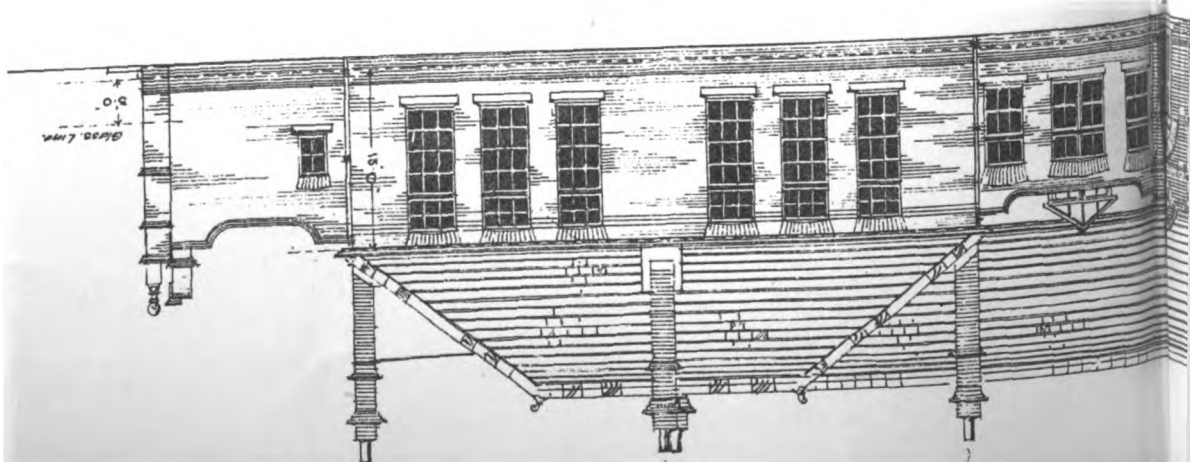
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Architect & Surveyor.  
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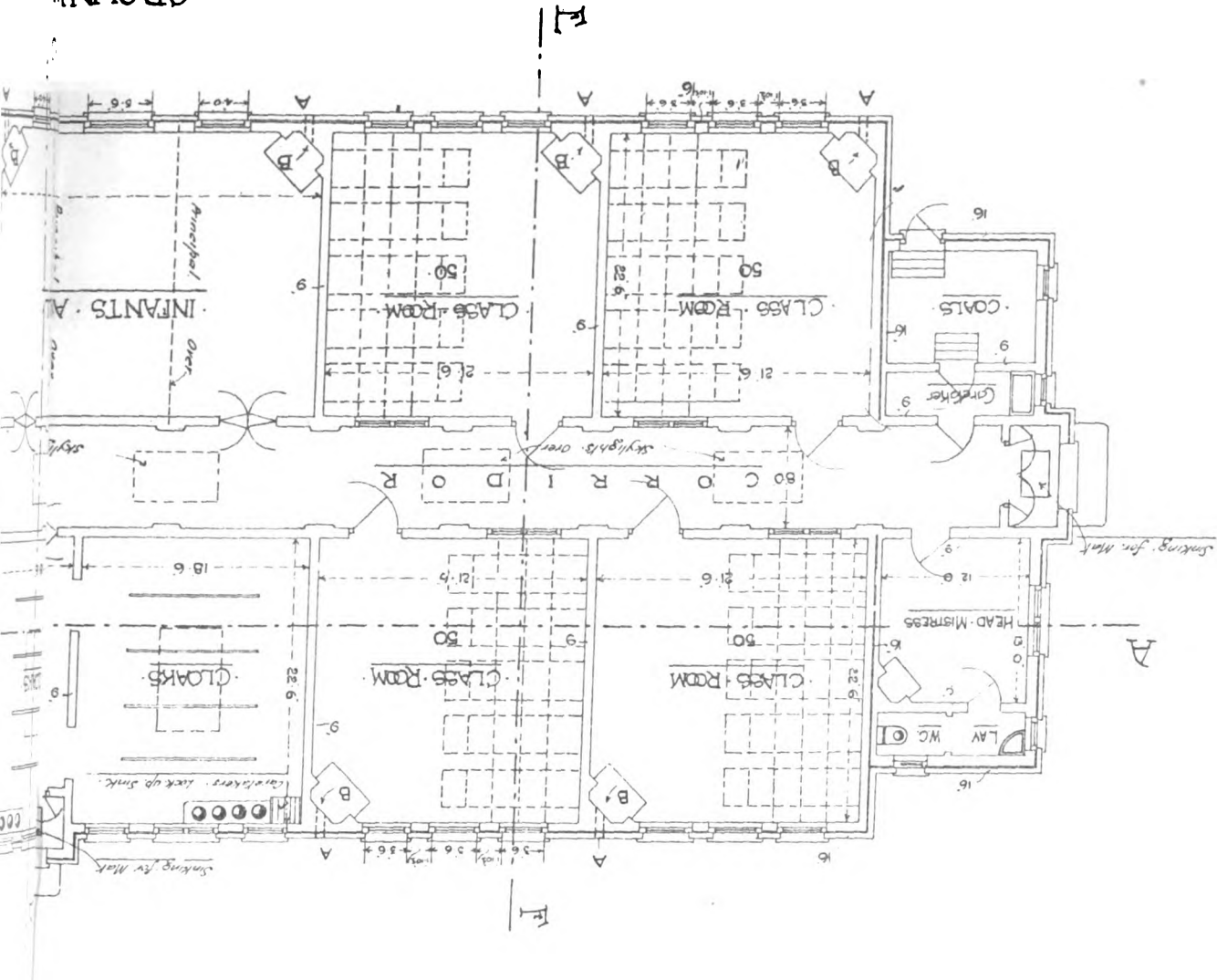


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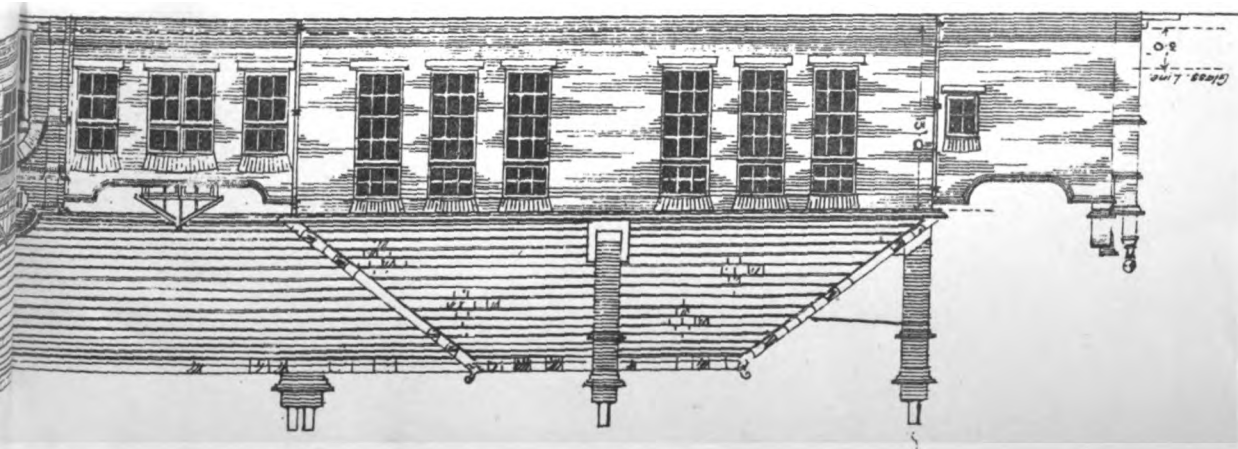


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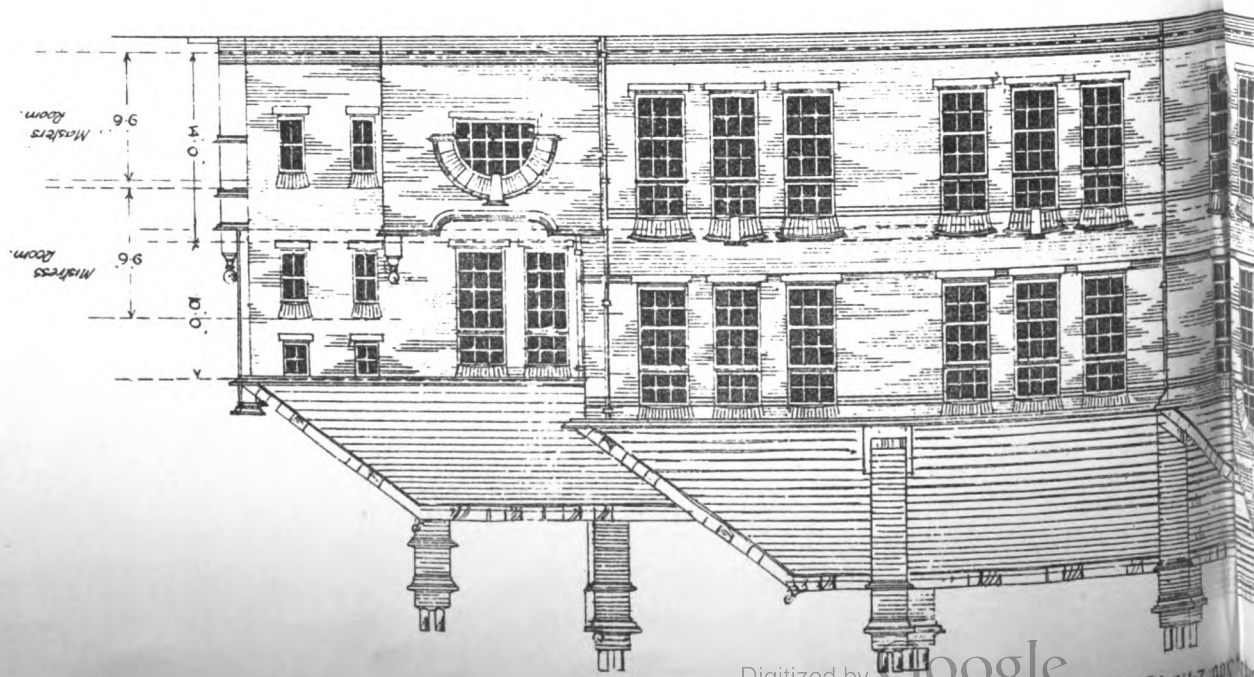
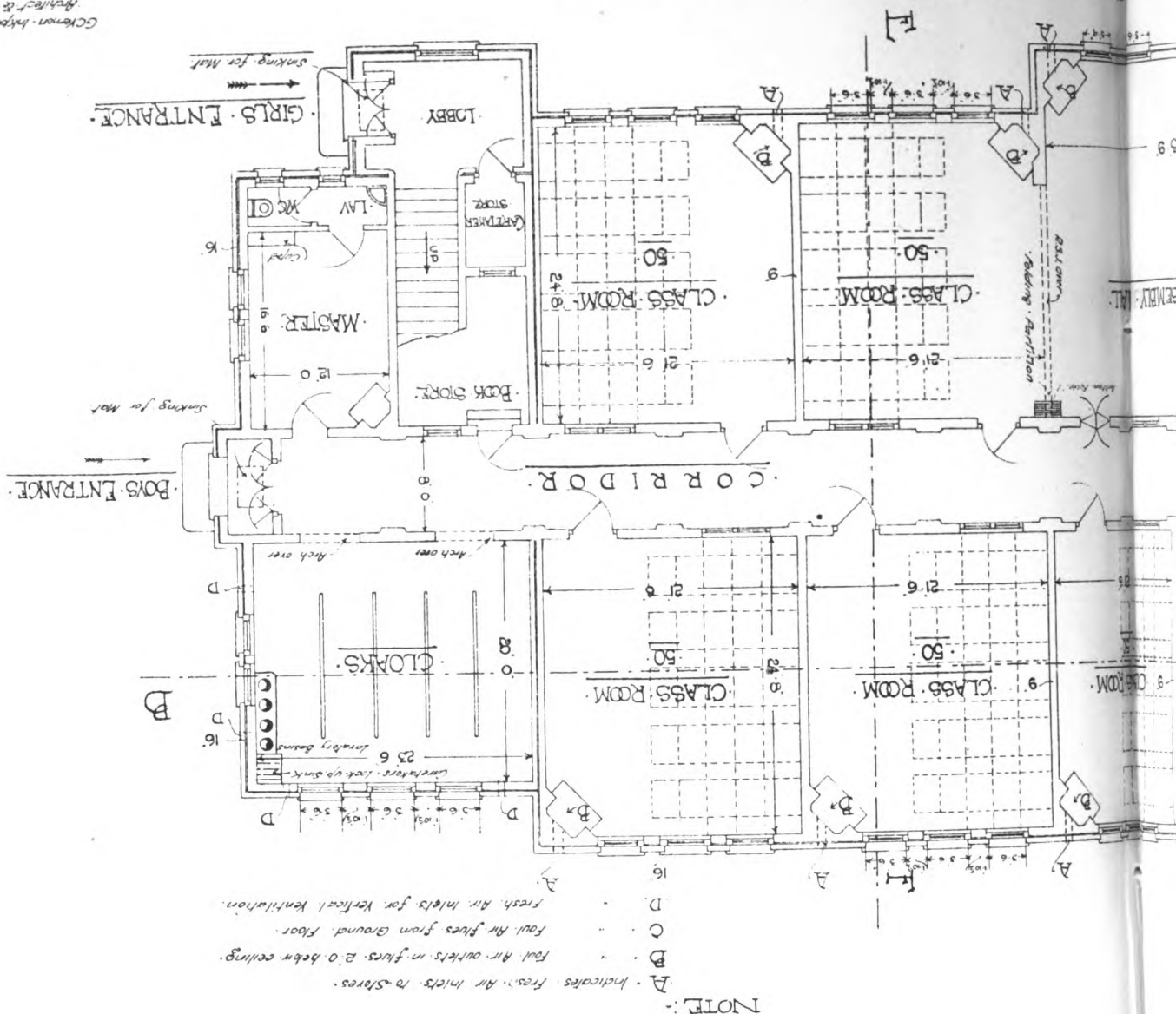




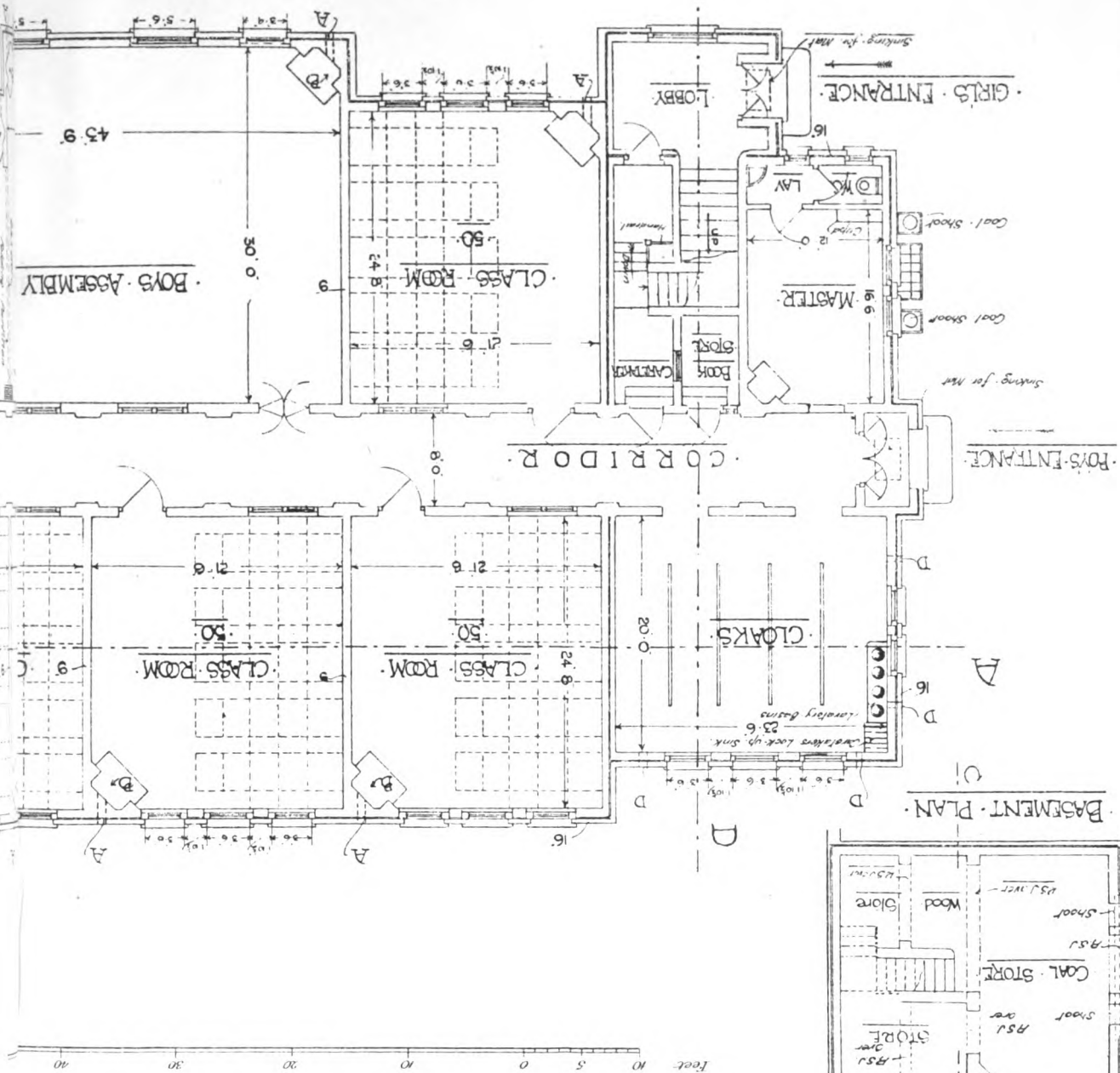


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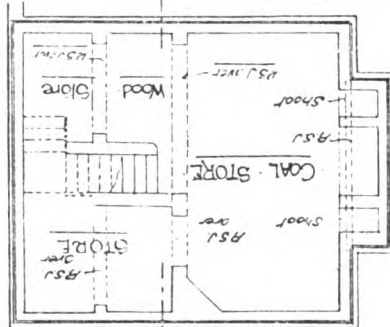
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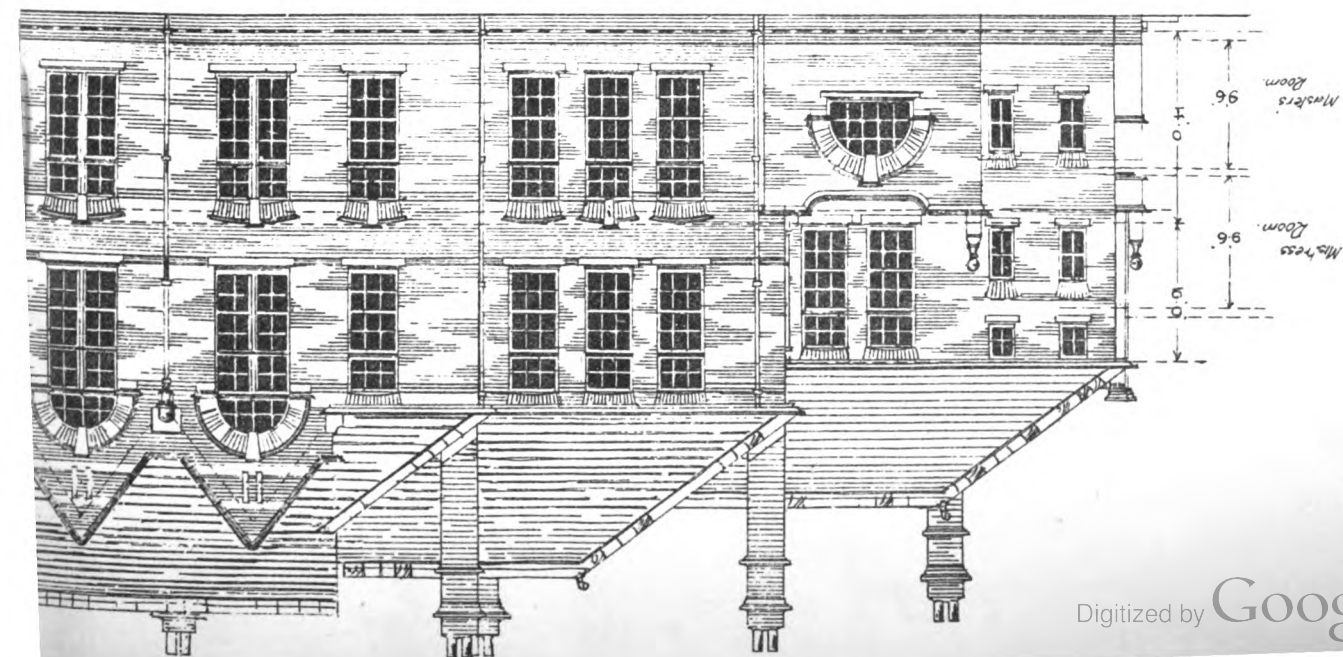
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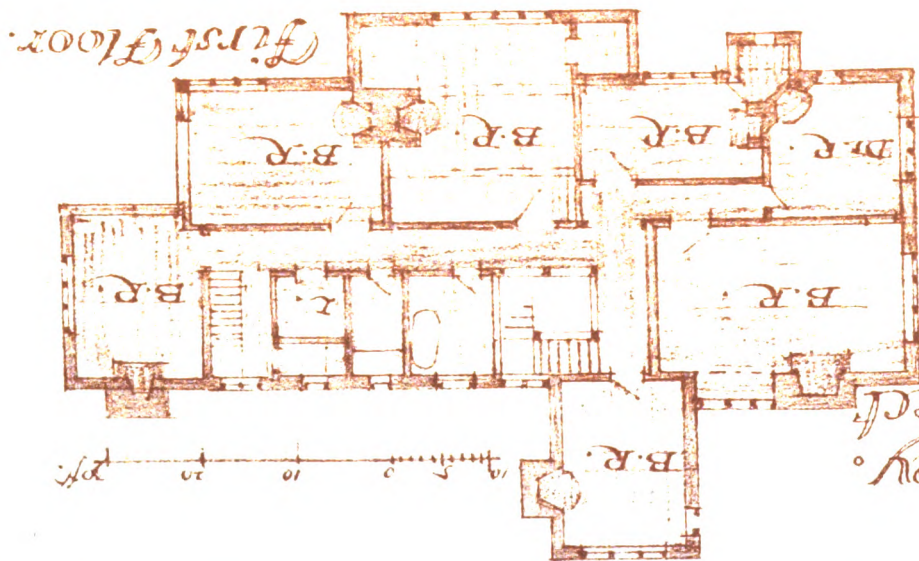
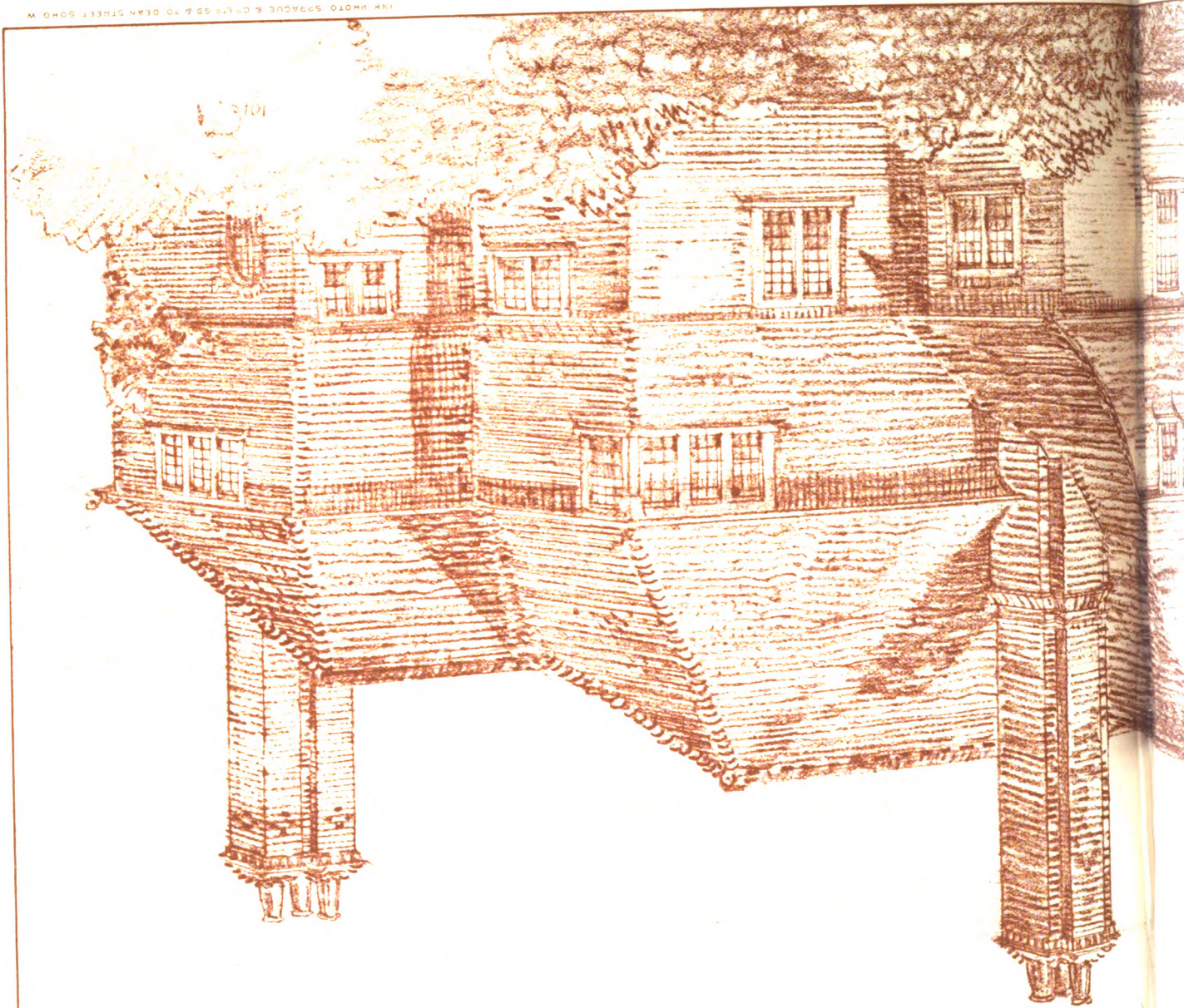
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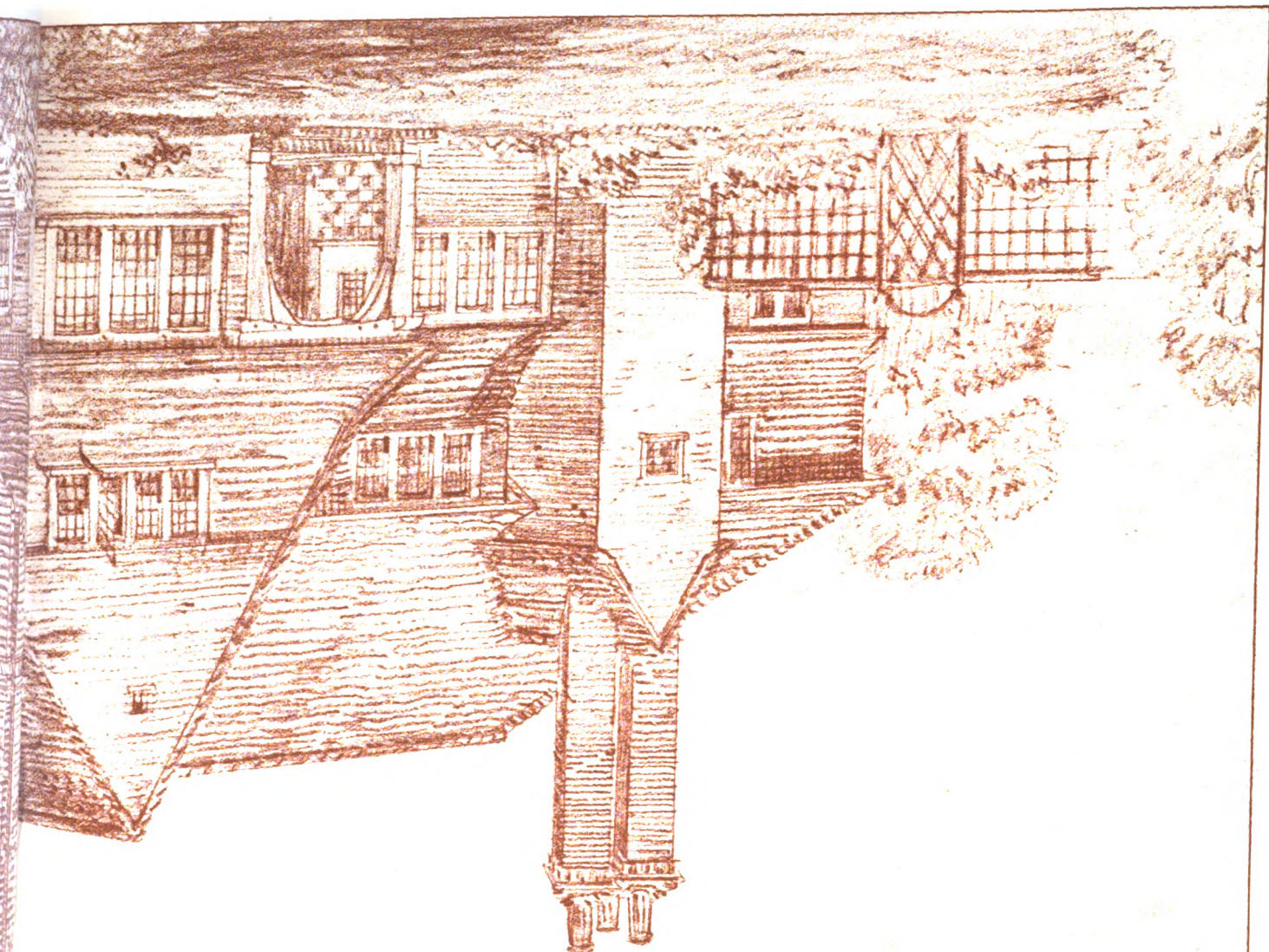
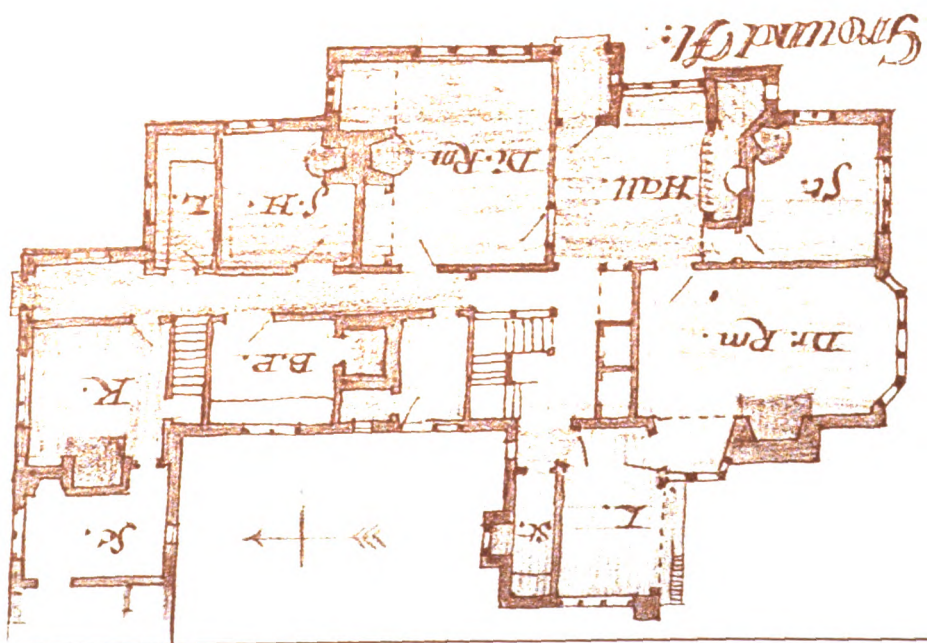




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E. May: Architect.



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from the past. The more we study the methods of those who have gone before, the better we realise the way in which they have met and overcome their difficulties, the more likely we shall be to attain to the best inspiration of a new creative force, and, at the same time, learn the very necessary lesson of humility.

### THE GOVERNMENT AND THE ZEPPELIN RAIDS.

THE following letter has been addressed to the Prime Minister, the Rt. Hon. H. H. Asquith, M.P., on behalf of the Committee on War Damage, which was organised in October 1915 "to urge the Government to abandon their scheme of war damage insurance and provide out of national funds for compensation," and on August 30, 1916, represented 539 municipalities:—

DEAR SIR,—Your letters of July 18 and October 27 last were considered by the members of our deputation at their meeting on the 7th instant, when the following resolution was passed:—

"That the deputation appointed to present the memorial of the committee to the Prime Minister be kept in being for the purpose of pressing the case of the committee on the attention of the Government:

"That Mr. Walter Long, President of the Local Government Board, be requested to receive the deputation on behalf of the committee, in order that they may confer with him upon the failure of the Government Insurance Scheme to distribute equitably the burden of making good the damage done by enemy aircraft attacks and bombardment:

"That Mr. Walter Runciman, President of the Board of Trade, be requested to inform the committee as to the extent to which individual citizens have availed themselves of the Government Scheme of Insurance against damage by aircraft and bombardment to September 30, 1916, viz.: (1) The number of insurances effected and the amount of premiums paid; (2) the total value of the property insured; (3) the number of claims already made against the Insurance Fund; (4) the balance of the Insurance Fund on October 1, 1916; (5) how many of the insurances effected are for property in Greater London and the East and South Coasts, and how many in Scotland, Ireland and Wales; (6) what proportion of the insurances effected refer to aircraft only: and that the Prime Minister not having yet replied to the final paragraph of the memorial (that relating to loss of life and personal injury), the consideration of the questions involved therein be adjourned till the next meeting."

On Thursday last, for a second time, I had the pleasure of hearing you speak on the question of the hour. Your countrymen were with you in all you said, especially did you represent a united people when you spoke as follows:—

"Peace when it comes, be it soon or be it late—and I will not disguise from you for a moment my conviction that the struggle will tax all our resources and our whole stock of patience and resolve—peace when it comes must be such as will be built upon a sure and a stable foundation, the security of the weak, the liberties of Europe, the free future of the world."

In England and Scotland to-day large numbers of your fellow-countrymen are suffering acutely from injuries inflicted on them by the Zeppelin raids and bombardments of the enemy, some of whom are absolutely ruined and dependent on the charity of others.

The Lord Mayor of York, in his address to the members of our deputation on the 7th instant, said:—

"I challenge anyone to point to any other occasion when the municipal authorities of the United Kingdom have been so united on any public question; and, personally, I protest against our deputation, representing such a body, being a second time refused an interview by the Prime Minister. Even in ordinary times to have organised such an expression of opinion on any question

would not have been easy; but at the present time the difficulties have been exceptionally great. What with the Press boycott and the difficulties of holding public meetings, our efforts have been handicapped in every way."

You, as the mouthpiece of the Government, have declared very clearly our duty towards the people of other lands who have been the victims of German militarism. Has not the Government an equal eye for the subjects of the United Kingdom? Wherein lies the distinction between a Belgian farmhouse ruined by German shells and an English shop shattered by a Zeppelin bomb? We have throughout our efforts borne constantly in mind the strain demanded of you by the many urgent and pressing claims upon you, but this is no mere side issue and we cannot understand your failure to realise that "the liberties of Europe" and the "free future of the world" can never be so long as any of our own people are left to bear on their individual shoulders the burden of this great war.

You would, I believe, be among the first to concede that for many of the necessary administrative acts of the Government no public sanction has been given. This was inevitable, but in regard to the War Risks Insurance Scheme we have been able to put before you a definite indication of the measure of public opposition to it, an opposition which includes a very large body of persons absolutely immune (in their own view, at any rate) from the Zeppelin menace owing to the geographical situation of their homes. These persons are supporting our aims on grounds wholly unselfish and detached from any element of personal interest, and for irresistible reasons of fairness and good policy.

Had your scheme been universal and compulsory, enforced as a levy upon owners or occupiers so that no one liable to make a claim for compensation would have denied it, objection would perhaps have been academic. As it is, you are faced with the spectacle of ruined homes or ruined business undertakings due to acts of the King's enemies for which, if our sympathetic references to reparation for the Belgians are not mere eloquence—and we rely upon it that they are made in good faith—the people of this kingdom must insist that compensation shall be made to our own people as well as to those of other lands.

It cannot be that the British Government means to abstain from making such a claim on behalf of England and Scotland. Equally unthinkable is it that the British Government will make and obtain satisfaction of such claim and withhold from the individual sufferers the sums recovered from the enemy in respect of it.

Among the claims arising for settlement after the war (and they will be numerous) the claim for damage sustained by the uninsured will occupy a prominent place, and it will be the more difficult of adjustment the longer the Government persist in their unfortunate Insurance Scheme.

As I have already said, your not having yet replied to the last paragraph of the memorial leads me to hope that you will soon give our deputation an opportunity of reasoning with you on the whole question raised by the memorial.—Yours, &c.,

MARK H. JUDGE, Chairman.

7 Pall Mall, London, S.W.: November 16, 1916.

### ROMAN REMAINS AT TEMPLEBOROUGH.

IN our issue of October 6 we gave a report by Mr. J. P. Bushe-Fox, of the Society of Antiquaries, on the subject of the Roman camp at Templeborough which he had submitted to the Rotherham Borough Council.

At a subsequent meeting of the Rotherham Borough Council in committee the Town Clerk stated that, acting on the instructions given to him by the Council, he had ascertained that Mr. Bushe-Fox was at present abroad on military service, but that he had seen Sir Hercules Read (Department of British and Mediæval Antiquities and Ethnography, British Museum) with regard to

**THE GREAT CENTRAL RAILWAY** passes from the Metropolis Northwards through the centre of industrial England, throwing out its branches Eastward and Westward to the Coast.

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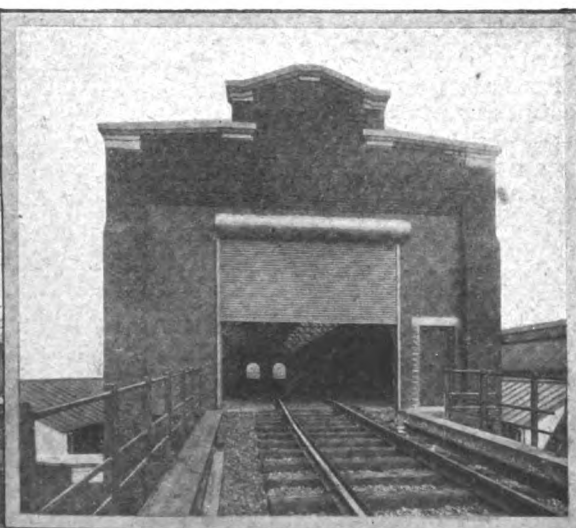
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an inspection of this camp, and that that gentleman had sent down to Rotherham his chief assistant, Mr. Reginald Smith, who had made a report on his visit as follows:—

The opportunity of making even a hurried visit to the doomed Roman site of Templeborough was very welcome, and I am sure from what you tell me that Rotherham intends to do its duty in the matter. The main thing is to make as perfect a record as possible, and to preserve all objects of interest in the local museum. The ramparts and buildings should be plotted on the largest published map procurable, and careful note taken of the levels both with reference to the ordnance datum and the river. I may suggest that the dip between the large tip and the railway bridge, which will have to be filled in to some extent to carry the new line, was once an approach to a ford, guarded by the camp of the fourth Gaulish Cohort (as indicated by stamps on tiles). This Cohort is mentioned in an order of discharge dated ninth year of Antoninus Pius (A.D. 169), and served under Papirius Aelianus. In a map published in William Smith's Ancient Atlas a dotted (uncertain) road is shown going due north from the Rykniel Street at Little Chester through Pentrich, Tapton (near Chesterfield), Templeborough (perhaps the ancient Morbium), Castleford, and Tadcaster to York; and an effort should be made to find the paved approach to the ford, where tiles set on edge in a herring-bone pattern may be found, as in London on two occasions.

The buildings uncovered on the river bank are no doubt the baths serving this camp, and there was probably a paved way between them and the nearest gate of the camp, in the middle of the rampart parallel to the river. The floor of the hot (or sweating) chamber was double, the lower floor which has survived having supported the upper (the level of which is seen in the adjoining wall) by means of piles of small square tiles. The space between was for the hot air from a furnace, and this can be found by digging where the black deposit of charcoal is now visible. The remains of the steps leading into the cold bath should be carefully preserved in the museum with specimen slabs of the flooring, showing cement or a double layer of large tiles. Excavation near this bath ought to bring to light the leaden pipes for supply and drainage; and workmen should be instructed to look out for marks on tiles (stamps), writing on tiles, inscriptions cut in stone, and coins, which are usually valueless in themselves, but give a clue to the date.

Photographs of this remaining masonry should be taken at once, and a general view of it and the river from the rampart, as well as any details that will be destroyed so soon, and will be of great interest in the future.

As to the camp, I believe extensive excavations have been carried out in the past, and there will probably be no time to explore more than the headquarters (near the middle) and the four principal gateways. Odd things will come to light when the whole surface is levelled but the masonry and any inscribed stones would be at the points mentioned. The camp is in much better condition than the ordnance maps suggest, and it is a misfortune that it has to be destroyed at all. That the work has to be done hurriedly in present circumstances is an archaeological disaster.

I regret that I can give you no active assistance, as we are reduced to minimum numbers here, but hope that Mr. May, who has had experience at Elslack, will watch the work of destruction and record all the finds. When one realises that the camp and buildings might have been destroyed before any record was possible the enlightened policy pursued by the Mayor and Corporation of Rotherham is worthy of thankful recognition by all interested in their country's past.

It was recommended that the sum of £250 be contributed to the Free Library and Museum Committee for the purpose of their acquiring for the museum in Clifton Park such historical information and specimens of Roman remains as may be desirable.

## Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

### Charing Cross Bridge.

SIR,—Your correspondents all take the same view, and rightly, too; but the suggestion of "Pickwick's" is the best I have seen. How could we better employ our money in commemorating the losses of our dear ones than in adding to the comfort of the living? Let us put up a memorial in the way of a bridge which shall serve for all time to remind us of the sacrifice which has been offered up for the principles of "right" as against those of "might."—Yours, &c.,  
W. G. K.

Strand: November 18, 1916.

SIR,—Angel or fool—it matters not; at any rate, I am free from the reproach of rushing in, whilst also I do not fear to tread in the footsteps of "A Constant Reader," "Daily-breader," Mr. Mark Judge, and others. The question of a new Charing Cross Bridge is old enough, and, like most English schemes for improvement, seems to be a treadmill operation. Doubtless from the viewpoint of travellers, every yard further that a railway system penetrates is a yard to the good, and consequently to make a transpontine retreat would seem deplorable; but honestly I do not believe that half a dozen Londoners would sleep any the worse were such a retreat effected.

The first thing to obtain is the safety of the public, and no time should be lost in strengthening the present structure, whatever decision may eventually be arrived at. That I fervently desire to have the existing Thames railway bridges cleared away may be understood; but were they replaced by fine examples of the engineer's powers in the way of design, their presence would be welcome.

Of course, as Sir Roger de Coverley pronounced in his famous judgment, "there is much to be said on both sides"; personally, I should think that the company would do well from a financial standpoint to make the transference, but as I hold no shares in the S.E. and C.R., that thought leaves me quite cold.—Yours, &c.,

PERCY L. MARKS.

10 Matheson Road, West Kensington, W.:  
November 19, 1916.

### The Piecemeal Destruction of Rheims Cathedral.

SIR.—A few days ago I read an extraordinary paragraph saying it was no use crying over the bombardment of Rheims Cathedral, but that what should be done was to drive the enemy out of range of it!

That is all well and good, but we Allies are some distance away from those long-range guns, and have many weeks—perhaps months—of hard work to fulfil the requirements of the strange proposal.

In the meantime, as the French aviators doubtless know where those guns are, why should they not—as they apparently could have done when the bombardment of the historical fane began, and could therefore have done over and over again for months past—go and drop bombs on the batteries referred to? I think that is more practical, under the circumstances.—Yours, &c.,

NON-IGNOTUS.

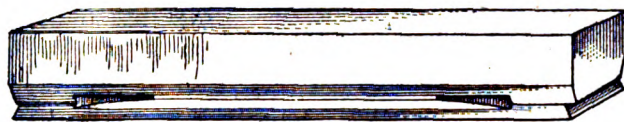
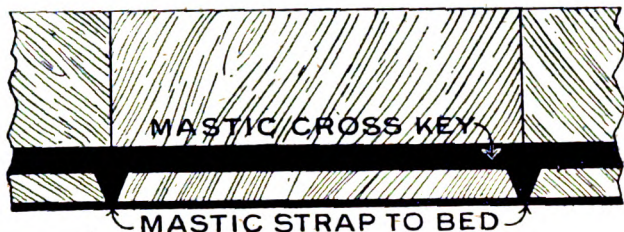
### The Jury System.

SIR,—The remarks of the Lord Chief Justice on the jury system lead me to call attention to a greater and unnecessary tax on the community in connection with the Grand Jury.

I have never desired to shirk a public duty, but I have never served on a Grand Jury without feeling that my time was wasted by an antiquated institution which now serves no useful purpose.

The protection which the Grand Jury originally afforded to prisoners is now fully secured by the public





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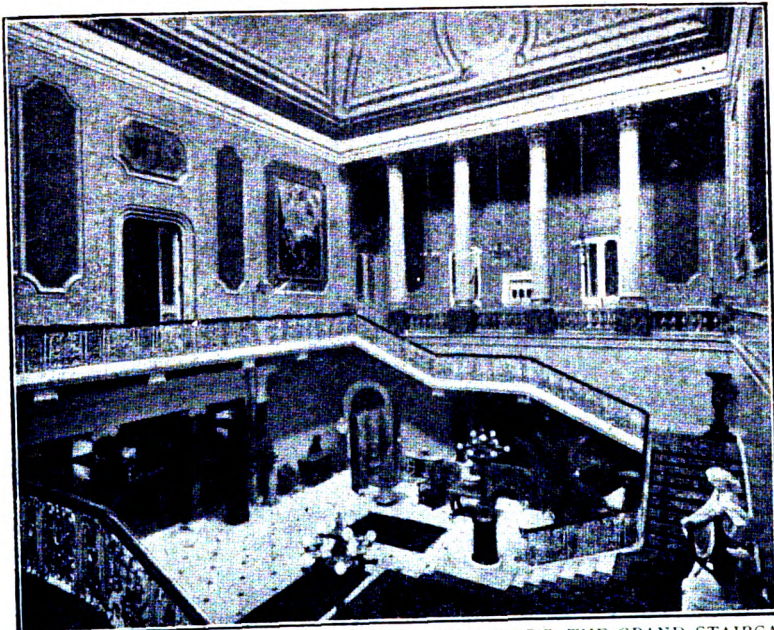


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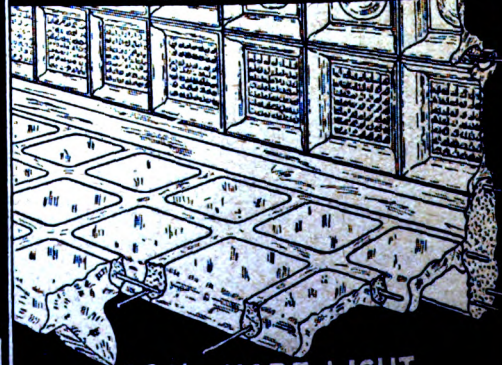
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examination prior to committal for trial; even in cases where prisoners may have been wrongly committed for trial it would be more satisfactory for them to be set at liberty on the evidence given in public rather than by a Grand Jury sitting with closed doors.

I venture to suggest that at this time of stress we might with great advantage abolish the Grand Jury.—Yours, &c., MARK H. JUDGE.

7 Pall Mall: November 20, 1916.

The Lord Chief Justice, November 16, 1916:—"My attention has been drawn to the difficulty that there is in getting sufficient jurymen into the Courts at present. Requests to be excused become more frequent every day. It is not to be wondered at. The reason why I mention it to the Bar is that I hope that members of the Bar, solicitors, and litigants will take into consideration the difficulties which there now are in bringing jurymen to the Courts, and will agree, so far as they can do so, under advice, to have their cases tried without juries."

#### War Savings Associations.

SIR,—The City Committee, under the presidency of the Lord Mayor, which is actively working with the object of getting War Savings Associations formed in every office, warehouse, and business house in the City of London, whilst gratified with the number that have already been formed, recognises nevertheless that a great deal still remains to be done to bring this patriotic war savings movement prominently before everyone in the City and ventures to ask for your valuable help.

Saving has the double effect of not only providing money available for lending to the country, but also of curtailing expenditure, and to that extent setting free supplies and labour for essential national requirements. War Savings Associations furnish an opportunity for all of us, whether we be rich or poor, to help our country, and at the same time we help ourselves by investing our savings on most advantageous terms, as the War Savings Certificates give a return of £5 4s. 7d. per cent., free of income-tax.

We hope none will refrain from joining associations on the ground that they can only contribute small sums. Every little helps, and subscribers of 6d. a week, or even 6d. a month, will be welcomed; there are many such already.

Finance is of vital importance in the prosecution of the war, and we can all, according to our means, take our share in assisting our country financially, and thus help to bring the war to a successful end.

May we ask that those business houses in the City where War Savings Associations have not yet been formed will at once communicate with us, and we will gladly give further information and every help in our power?

The officials of existing Associations, having found from their own experience how popular these Associations are, have rendered invaluable help to this committee in suggesting and encouraging and helping in the formation of similar Associations.

In the City hundreds of such Associations are already formed and are working with most satisfactory results—proving that the members of same welcome the opportunity thus afforded them of taking their share in this great work.

With grateful thanks to you for your courtesy in inserting this communication in your valuable paper.—Yours, &c.,

On behalf of the City of London Local Central Committee,

(Signed) W. PLENDER, Chairman.

(Signed) EDWARD DEXTER, Hon. Secretary.

Scottish Provident Buildings.

3 Lombard Street, E.C.: November 20, 1916.

P.S.—This communication will doubtless come before the notice of many who are not in the City area, and in those cases inquiries should be addressed to their Local Central Committee, or to the National War Savings Committee, Salisbury Square, Fleet Street, E.C.

#### BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

##### DERBYSHIRE.

*Ilkeston*.—Premises, Bath Street: alterations for Mr. W. Donson.

##### DURHAM.

*High Spen*.—Proposed workmen's dwellings.

##### GLOUCESTERSHIRE.

*Bristol*.—Wesleyan Church, Old Market: restoration.

##### HAMPSHIRE.

*Andover*.—House, Bishopsway. Messrs. Bell & Co., builders, London Street.

*Gosport*.—Flats, Avenue Road. Mr. J. Hupt, builder, South Wharf, Cleveland Road.

##### KENT.

*Berley*.—Excelsior Engineering Works: extensions for Messrs. R. Lane & Sons.

*Bexley Heath*. No. 283 Broadway: additions and alterations. Mr. W. B. Butler, builder, the Broadway.

##### LANCASHIRE.

*Accrington*.—Proposed church in connection with St. Matthew's, Stanhill, Oswaldtwistle.

##### MIDDLESEX.

*Cowley Peachey*.—Factory: additions for Messrs. Parker & Sons.

##### MONMOUTHSHIRE.

*Newport*.—Cold storage, Shaftesbury Street: extension for the Cardiff Pure Ice Co. Messrs. Willmott (A.R.I.B.A.) & Smith, architects, 29 St. Mary Street, Cardiff.

##### OXFORDSHIRE.

*Banbury*.—Premises, corner of Broad and High Streets: alterations for Messrs. Hilton.

##### SUSSEX.

*Bexhill-on-Sea*.—Bungalow, Gunter's Lane, for Mr. G. E. Mavnard.

House, Collington Avenue. Mr. J. B. Wall, F.R.I.B.A., architect, 13 Devonshire Road; also

"Normandale," Collington Avenue: addition; also

"Westlands," Collington Avenue: addition; also House, Brockley Road.

##### WARWICKSHIRE.

*Birmingham*.—Cannon Street Memorial Baptist Church: proposed new church.

*Coventry*.—Premises, Shackleton Road, for the Star Foundry Co.

##### YORKSHIRE.

*Dewsbury*.—Parochial Hall, Hanging Heaton.

*Goole*.—Mill, Boothferry Road: addition for Messrs. Timm & Son.

Shipyard, Swinesfleet Road: additions for the Goole Shipbuilding and Repairing Co.

##### SCOTLAND.

*Dundee*.—Cottage, Court Street, for Messrs. F. S. Sandeman & Sons.

Cinema Theatre, Gray Street, Broughty Ferry: additions for Broughty Picture House, Ltd.

*Glasgow*.—No. 262 Pinkston Street: house, &c., for Messrs. W. C. Hodgkinson & Co.

No. 55 Preston Street, Bridgeton: extensions for Sir William Arrol & Co., Ltd.

No. 254 Dobbie's Loan: extensions; also store, Canal Street, for the Bergius Launch and Engine Co., Ltd.

Works, Mansion and Ashfield Streets: additions for Messrs. A. & J. Main & Co., Ltd.

*Kirkintilloch*.—Slipper baths, Union Street.

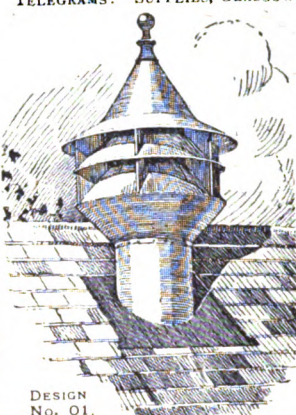


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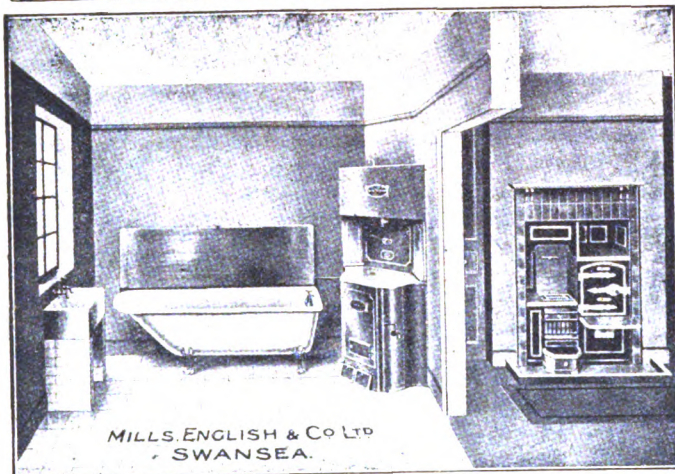
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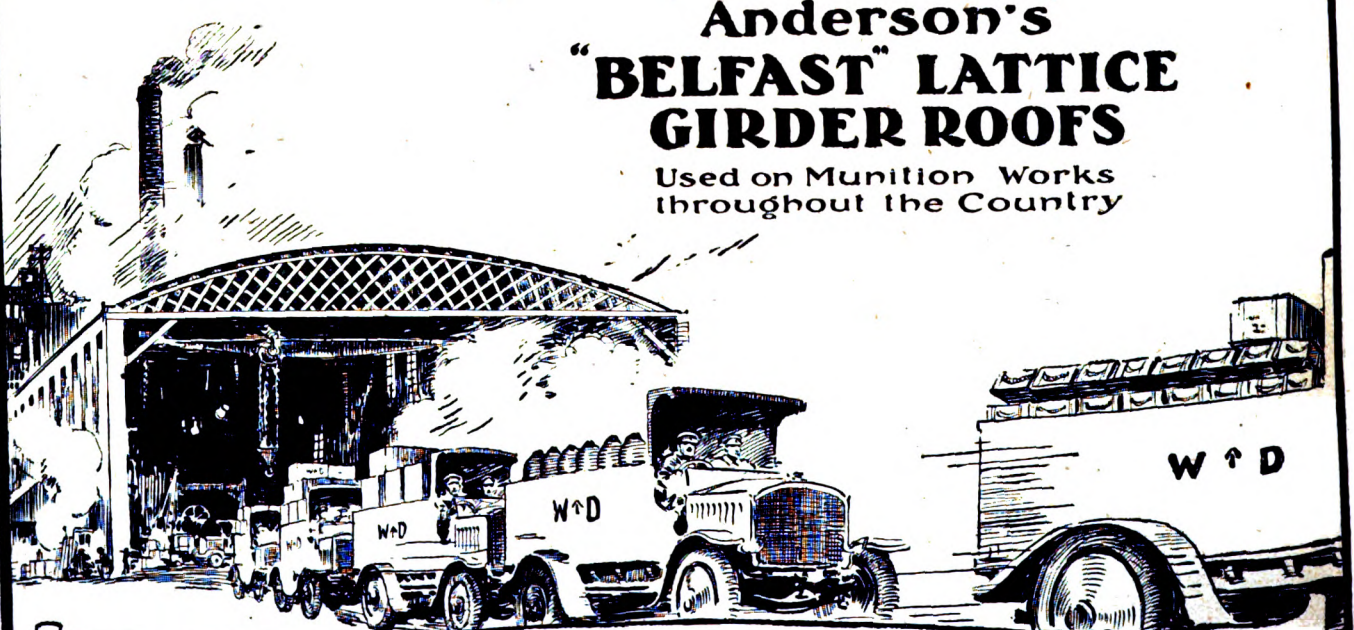


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# THE ARCHITECT

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## FORTHCOMING EVENTS.

*Tuesday, December 5.*

Institution of Civil Engineers: Paper to be further discussed, "Keadby Bridge," by Mr. James Benjamin Ball, M.Inst.C.E., and paper to be submitted for discussion, "Experiments on Earth Pressures," by Mr. Ponsonby Moore Crosthwaite, B.A.I., M.Inst.C.E., and ballot for new members, at 5.30 p.m.

University College, Gower Street, W.C.: The fifth of six public lectures on "The Town Planning of Greater London after the War," by Professor S. D. Adshead, M.A., F.R.I.B.A., at 5.30 p.m.

*Wednesday, December 6.*

Royal Archaeological Institute: Paper entitled "Roman Provincial Terra Sigillata, its Evolution and Chronology," by Dr. F. Oswald, D.Sc., and Dr. T. Davies Pryce, M.R.C.S., in the Apartments of the Society of Antiquaries, at 4.30 p.m.

Institution of Sanitary Engineers: Paper entitled "Sanitation with the British Expeditionary Force in France," by Mr. Nandy W. Hoskins, at Caxton Hall, W., at 5.30 p.m.

*Thursday, December 7.*

Chadwick Lectures: The second of three lectures on "Architecture in Relation to Health and Welfare," by Mr. Paul Waterhouse, M.A., F.R.I.B.A., at Surveyors' Institution, at 5.15 p.m.

L.C.C. Central School of Arts and Crafts, Southampton Row, W.C.: University Extension Lecture X. on English Architecture: "The Tower of London," by Mr. Banister Fletcher, F.R.I.B.A., at 6 p.m.

*Friday, December 8.*

Town Planning Institute: Paper entitled "Housing and Town Planning Requirements at the end of the War," by Councillor Harrison Barrow, at 6 p.m.

## THE PORTLAND CEMENT INDUSTRY.

GREAT BRITAIN, the first home of Portland cement manufacture, has lost its pre-eminence as a producer of one of the most important constructive materials at the present time. In 1913 the three largest cement-producing countries were Great Britain, with 3,000,000 tons; Germany, with 5,000,000 tons; and the United States of America, with 15,348,000 tons.

As in so many other branches of industry in this country, our manufacturers of Portland cement have been content to do as their fathers did—to continue the use of antiquated machinery and antiquated methods whilst their competitors overseas were introducing and utilising every possible improvement that would tend either to the higher quality of the product or the reduction of the cost of producing. Not only were our manufacturers for the most part content to rub along in the old way, but even if they wished to adopt newer machinery they had to go abroad for it.

Up to within a few years ago most of the machinery came from Germany, as no British firm was prepared entirely to equip works with plant embodying the new designs, although there were firms who could supply certain parts. It is gratifying to note that this unsatisfactory state of things no longer exists, and British-made cement-making machinery can now challenge comparison with anything of the kind manufactured in Germany.

We still, however, remain markedly inferior to our competitors in the United States; and much remains to be accomplished in the designing of Portland cement machinery in this country to bring it to the same standard of efficiency that now prevails in the United States. The progress made in the cement-manufacturing industry in that country owes much to the untiring efforts and whole-hearted co-operation of the Association of American Portland Cement Manufacturers, founded in 1902, and of the National Association of Cement Users, formed about the same time. These associations have promoted and encouraged research and the dissemination of knowledge and statistical information, placed unselfishly and ungrudgingly at the disposal of all.

The British manufacturer was for many years severely handicapped in his efforts to improve the product by the custom which existed of every engineer drawing up his own specification for cement, a requirement specified in one clause often rendering the stipulations of another impossible of fulfilment, owing to the lack of knowledge of details of its manufacture. This difficulty has now largely disappeared through the adoption of a British Standard Specification for Portland cement.

The requirements of the British Standard Specification ensure the manufacture of a cement incomparably superior

to that recognised as of satisfactory quality thirty or forty years ago. The most remarkable development in modern cement from the user's point of view is the greatly increased fineness of the finished product. Whereas formerly the sieve of 2,500 meshes to the square inch was the usually admitted criterion, and a cement considered to be sufficiently fine for ordinary use which left a residue of 10 per cent. on that sieve, the British Standard Specification now requires a residue of not more than 1 per cent. on a sieve of 5,776 meshes to the square inch, and of not more than 14 per cent. on a sieve of 32,400 meshes.

Fine grinding has therefore been the objective of the inventor and maker of cement-producing machinery and of the manufacturer, and many inventions have successfully led to the attainment of the high standard of grinding now required. An excellent description of some of the most modern grinding machinery now used in cement manufacture is to be found in a recently issued handbook\* by Mr. W. A. Brown, a well-known expert in cement making.

Although fineness of grinding as now practised has increased the value of modern Portland cement, enabling us to make mortar of greater tensile strength, it should be noted that the sieve test alone is not sufficient to ensure that the grinding has been carried out in such a manner that the full strength of the cement has been attained. The reason for this lies in the fact that a well-ground cement, even when brought to the standard of fineness required by the British Standard Specification, is of irregular and uneven fineness. A considerable proportion is, in fact, of such fineness as to be unmeasurable by a sieve, whilst other particles only just pass the mesh in use, and between the two is a gradation of other particles more or less closely approaching one or other limit. It is quite possible to grind a cement to a high and uniform degree of fineness, which will nevertheless be utterly deficient in setting power. Therefore, grinding machines must so operate that their resultant is uneven in fineness and contains a gradation of particles ranging from an impalpable flour to the highest permissible degree of coarseness.

Fine grinding is not only essential for the finished

\* "The Portland Cement Industry." A practical treatise on the building, equipping, and economical running of a Portland cement plant. With notes on physical testing. By William Alden Brown, Assoc. Am. Soc. C.E.; Member South Wales Institute of Engineers; formerly Assistant Superintendent Cowell Portland Cement Company, Cowell, California, U.S.A.; Works Manager Burham Portland Cement Company (Associated Portland Cement Manufacturers); Works Manager Aberthaw and Bristol Channel Portland Cement Company, South Wales. (London: Crosby Lockwood & Son, 7s. 6d. net.)

product, but equally so for the preparation of the raw material. The importance of the fine grinding of the raw material to ensure a sound and volume-constant cement is now generally acknowledged, though in the early days of the industry this subject received but very scant attention. Every manufacturer is now agreed that to ensure the materials entering into proper chemical combination when submitted to the clinkering temperature—about 2,800° to 3,000° F.—it is absolutely necessary that they should be in the finest possible state of subdivision.

Improvements in grinding machinery have progressed faster abroad than in our own country, not only because our manufacturers were already operating with primitive apparatus, which it would have been costly to scrap, though economical in the long run, but because the raw material here has been obtained from a plentiful supply of soft chalk and alluvial clay, whereas our foreign competitors have had to deal with crystalline limestone and shale.

The difference in the nature of the raw material has no doubt tended to accentuate the difference of opinion amongst cement manufacturers as to the relative advantages of the wet and dry processes of mixing the raw materials. With our prevalent soft chalk and clay, already containing a large amount of moisture and easily reduced to a liquid slurry, there could scarcely be any doubt as to the preference for the wet method; but with hard, dry crystalline limestones there was room for a contrary opinion. Still, it is to be noted that on the Continent of Europe and in the United States, where the dry process was previously general, several modern plants have adopted the wet method of preparation.

The second great revolutionary agent in the improvement of modern cement manufacture has been the introduction of the rotary kiln, which has helped forward the development of the industry by raising the quality of the product and at the same time decreasing the cost of manufacture. The idea of a rotating furnace was first conceived by Crampton as far back as 1877, but no practical application was made till Ransome patented his design in England in 1885. The earliest kilns were naturally small, Ransome's largest being only 26 feet long and 5 feet in diameter, whereas to-day there are several kilns now successfully running in this country of lengths varying from 200 to 230 feet by 9 feet in diameter; and one, at least, in the United States has been constructed 250 feet long and 12 feet in diameter.

Improvements in cement manufacture have naturally led to the use of many other forms of machinery, whether for the getting of the raw material from the quarry, the transport of it to the factory or storehouse, the feeding of grinding machines and kilns, and the subsequent handling. Hence a modern Portland cement factory is a complicated collection of machinery, where each unit has to be considered separately as a part of the whole, but requiring modification and adaptation to the particular circumstances of the establishment.

In the book by Mr. W. A. Brown to which we have referred will be found not only descriptions of the various machinery required in an up-to-date cement factory, but a careful and detailed analysis of the costs of manufacture, which should prove of value not only to those who contemplate investment in this industry, but to those who are already engaged in it, and can, by comparison, find out what parts of their own procedure require investigation and possible overhauling.

THE Town Planning Committee of Dunfermline Town Council have had under consideration a communication from the Scottish National Housing Co., Ltd., intimating that the company proposed to undertake the building of a further 1,000 houses at Rosyth, to be completed ready for occupation within one year, with a view to meeting the urgent needs of the Admiralty. The Council after some discussion have consented to give all possible assistance in view of the urgency of the scheme.

## BELGIUM AND BRANGWYN.

INCLUDED amongst our inset illustrations this week are reproductions from two of the drawings made by Mr. Frank Brangwyn, A.R.A., in preparation for the adornment with wood-block engravings of the sumptuous volume\* on Belgium, as it was, that he has given as a contribution to the Belgian Relief Fund. Certainly we may re-echo his hope that the book may be sold in thousands for the benefit of the cause. We are sure that no purchaser can honestly feel that any considerable portion of the half-guinea he pays for the book can be credited to his account for charitable donations. In other words, the production is excellent value for money as an investment in art.

Wood-block engraving is now, alas! so rarely used as a means of book illustration that we have come to regard it as almost an extinct form of art expression, and from this point of view alone it is refreshing and of deep interest to have presented to us fifty-two examples of the capabilities of the craft. As we study these examples we are struck with the feeling that Brangwyn's art is admirably suited to presentation in wood engraving; we might say pre-eminently so suited, but that we remember that many other media are also equally effective in Brangwyn's hands, and the conviction is borne upon us that his art is universally fitted to the particular method in which, for the moment, it is presented.

There is in wood engraving a potentiality of colour in the handling of absolute black and white which is distinctly different from anything attainable in an etching, in a process block, or in any other method of reproduction from a black-and-white drawing. The illustrations to Mr. Brangwyn's "Belgium" are full of the peculiar timbre of the wood block, and are by this quality distinguished as much as by the forcefulness of expression which is a general characteristic of Mr. Brangwyn's work, and as personal to himself is quite distinct from the wood-block timbre of which we are speaking. Thus, in the illustrations before us we have, pervading the whole series of fifty-two examples, two separate essences; the strength of Brangwyn and the quality of wood engraving.

From another point of view the new book on Belgium should be of especial interest to readers of "The Architect." The great majority of the fifty-two illustrations are pictorial representations of the architecture of Belgium as it existed before the destroying hand of the latest invader wrought the havoc which is visible to-day. This is not surprising, for the outstanding characteristic of the visual aspect of Belgium is, or was, its wealth of ancient architecture rather than its natural landscape features.

Nor is it only Mr. Brangwyn's art that makes this book on Belgium delightful. The literary portion by which the illustrations are accompanied, the text by Mr. Hugh Stokes, gives us a verbal picture of the many stirring scenes that have occurred in the oft-distracted country of Belgium, of the heyday of prosperity that existed in the Netherlands during the Middle Ages, of the greatness of the country in art, in commerce, and in industry, as well as of the tragic upheavals and conflicts that have made Flanders the cockpit of Europe in the past as it is once again.

The scheme of the literary story as set out by Mr. Stokes takes the form, as it were, of an itinerary from the sea to the eastern frontier, passing through Flanders and its great cities into Brabant, gazing for a moment at Liège and the towns on the Meuse, briefly touching the Ardennes, Hainaut, and the country round Tournay, halting *en route* at Bruges and several of the more or

\* "Belgium." By Frank Brangwyn, A.R.A., Hon. Member of La Société Royale des Beaux-Arts de Bruxelles; Cavaliere of the Order of the Crown of Italy, &c., &c. With Text by Hugh Stokes, author of "Francisco Goya," "The Etchings of Charles Méryon," "Sir Anthony Van Dyck," "Benozzo Gozzoli," &c. And an Introduction by M. Paul Lambotte, Directeur au Ministère des Sciences et des Arts de Belgique. With fifty-two illustrations. (London: Kegan Paul, Trench, Trübner & Co., Ltd. 10s. 6d. net.)



less decayed towns in the Franc of Bruges, at Ghent, Malines, Antwerp, Brussels, Villers, Louvain, Tirlemont, Liège, Huy, Namur, Dinant, Tournay.

Bruges, the birthplace of Frank Brangwyn, is shown in views of the Market Place, the Pont des Baudets, the Quai Vert, the Church of the Jerusalem, a farm near the city, and a group of windmills. Of these the Pont des Baudets is a delightful study of luscious colour in shades and shadows, surpassing though approached in this character by the Quai Vert. The Church of the Jerusalem is a fine piece of composition, with one of the several instances in the book of striking representations of a street crowd. The farm is a charming sunlit drawing, and the Market Place an excellent example of a decorative wood-cut.

There are many illustrations from the Franc of Bruges; from Ypres we have the old wooden house, the original drawing of which is reproduced in one of our inset illustrations in this issue. The famous Cloth Hall, now, alas! no more than a battered shell, is shown in a typical Brangwynesque view of the exterior and an interior, depicting the upper room with its open timber roof.

Nieuport furnishes the subjects in its Church and Cloth Hall of two powerful drawings; a head-piece from the dunes and a tail-piece of the Phare; Lisseweghe, a gable-end of the wonderful abbey of Ter Doest. The church of St. Nicholas, Dixmude, forms the background of a busy market scene where, apparently, as Guicciardini said in the sixteenth century, "is to be found the best butter in all the Low Countries." The interior of the church at Dixmude, as will be seen from our illustration, is a powerful study of interior lighting.

A distant view of Damme and another of Audenaerde are excellent examples of simply-wrought wood-cuts used as head-pieces. The church of St. Walburge, Furnes, is a fine study of suggestion in the portrayal of intricate architectural detail and the grandeur of fine form.

Ghent yields but two subjects, a head-piece of the Château of the Counts and a full-page of the Belfry and Town Hall, the latter with the buildings in shade, the Belfry scarcely more than a silhouette. Of Malines valuable reminiscences are preserved in views of the Palais des Archives and the Cathedral of St. Rombaut, with a head-piece of the "Halles." Two wonderful drawings depict a view across the Scheldt and the Calvary of St. Paul at Antwerp, grandly illustrative of that city's prominence in commerce and in religion.

Two views in Louvain, one of the Library and University, the other of the Cathedral of St. Pierre, are highly interesting examples of contrasted methods of presentment, the former by strong opposition of black and white, the latter by general greyness depicting a huge building in deep shadow. But for a superlative example of the possibilities of the latter scheme a night view of the Cathedral and Belfry at Tournay is supreme, a paramount example of the special capability of wood engraving for this treatment of example. But, indeed, the more we study the great variety of effect and of technique displayed in Mr. Brangwyn's illustrations the more we are impressed with the potentialities of wood-block engraving. Truly this is a book which will afford many hours of pleasure to the lover and the student of artistic expression in black and white; and in these wood-cuts the blacks are black, yet full of luminosity, the whites are white, pure and brilliant.

THE Government of the Commonwealth of Australia have now cabled to this country that the international competition for the proposed Federal Parliament House has once again been postponed indefinitely.

MR. JOSEPH PENNELL, whose exhibition of drawings of munition factories will be opened on Friday by Mr. Montagu at the Guildhall Art Gallery, has been invited by the French Government to make a similar series in that country, and Mr. Pennell is shortly proceeding to France to undertake the work.

## NOTES AND COMMENTS.

THERE is a certain amount of parliamentary or debating society clap-trap about the emphasis laid, in the discussion on Lord D'Abernon's National Gallery Bill, on the fact that of 23,000 works of art in the National Gallery, 20,000 are by Turner and 3,000 by artists of all other schools. The 20,000 are not all of the size or calibre of the masterpieces with which we are familiar on the walls of the public rooms. The number is only made up by the inclusion of a large collection of those rapid memoranda, they can scarcely even be called sketches, which Turner was accustomed to make, roll up, and stuff into his pockets to serve as his own personal notes for future reference, and intended, during his lifetime, for no eyes but his own. There are, however, other masters, in whose works the National Gallery is also disproportionately rich, and we quite approve of the general principle that the Trustees should have the power either by direct barter, by euphemistic loan, or by sale and purchase, to rectify the lop-sidedness of the national collection. It can scarcely be disputed that such a collection should be as catholic and wide embracing as possible, and that it is desirable that every great and even every little master of the past should be in some degree represented.

The Edinburgh Architectural Association having completed fifty years of existence, it is natural that there should be a general desire for a record of its history. The preparation of such a record has been entrusted to Mr. G. S. Aitken—an original member, who has now completed his MSS.; but before going to press the Council is desirous of ascertaining the measure of support likely to be accorded the effort, and in view of the early issue of the volume, wish to receive on or before Monday, December 4, requests for copies from all interested in the matter. The price is 4s. cloth bound; 3s. paper covers, and letters should be addressed to Mr. James Kerr, Hon. Secretary, 117 George Street, Edinburgh.

According to an inspired article in the "Morning Post," the drawings by Lieut. Muirhead Bone illustrating scenes in the war zone, which will shortly be issued by the authority of the War Office, mark a natural development of the spirit and technique which have won for him high regard in art circles. The spirit moves with greater elation, and craftsmanship follows with corresponding vim. The elaborate "phrasing" of his pre-war work—or most of it—has broadened into a direct, unmistakable statement or record of things seen by an artist of real feeling, unerring eye and hand. Historians may accept with confidence the information supplied by Mr. Bone, and his fellow artists will find in these drawings the fulfilment of a great promise. It must not be thought that Mr. Bone has restricted himself to representations of ruins of places, such as Ypres, Arras, and Albert. On the contrary, his drawings illustrate every subject to be seen in the war zone, and each phase is expressed in accordance with its character and mood. Military operations, huge guns in "hospital," camp scenes, men on the march or in dug-outs, ruined towns, and devastated landscapes all figure in these drawings of the Western Front. And the reproductions are faithful to the spirit and expression of the originals.

The final resting-place of the bodies of the Habsburg emperors and their consorts is in the small, insignificant Kapuziner-Kirche, a few hundred yards to the east of the Burg; it is a rococo building, low roofed and virtually devoid of exterior decoration. This insignificant building, however, shelters the mortal part of more than 130 of the Habsburgs and their consorts. Here they have been laid for three centuries.

The interior of the chapel is hardly less plain than the exterior. There is no sign of pomp. The altar has no gorgeous appointments: on the pews there are no imperial trappings. The absence of display is so very marked as to prove that it is intentional. There is, one might almost say, an ostentatious absence of ostentation.

It is typical of that spirit which led the late Franz Josef, continuing the practice of his predecessors, to perform year by year the Maundy Thursday ceremony of washing the feet of twelve poor persons. The church was founded in the early years of the seventeenth century by the Empress Anna, consort of Matthias. Previous to that time the bodies of the Emperors had been interred in the catacombs. The first person laid to rest in the burial-vault constructed beneath the Kapuziner-Kirche was the foundress, who died in 1618. In the following year her husband was laid there also. Within a century the vault had to be enlarged, and in 1748 a new vault had to be constructed, which in turn had to be enlarged about 100 years since.

Mr. Raymond Unwin is to be congratulated on having secured agreement between the Corporation of Dublin and the Property Losses Association as to the Bill which the Chief Secretary will promote in Parliament as an agreed Bill. In reply to the toast of his health at a congratulatory luncheon, Mr. Unwin said that in the negotiations that had taken place, and which had resulted in agreement, the great principle was the having regard to "the other fellow's point of view." Dublin had to face the great problem of reconstruction. There ought to be some means of handling the problem as between the party that sought to demolish houses that were unhealthy and those who required to be compensated for them at an unreasonable rate. What he suggested was that, if owners failed to reconstruct houses, they ought to receive a time notice to rebuild, and, if they failed, then such arrangements should be made as that one side should not entirely win, and that the other side should not entirely lose.

It was stated in one of the papers that morning that the town-planning movement would cause heavy expenditure. That was a fallacy. The idea was that provision should be made for the future, with the minimum of expenditure, so that houses should not be erected which would have to be pulled down later on. Town planning was for the future development of a city so that nothing should be done haphazard. He believed that hundreds of thousands of pounds could be saved by laying down a line of rational town planning now, and working along that line in future improvements. Let them not regard town planning as the forerunner of lavish expenditure, but rather as the means of avoiding wasteful expenditure. Dublin was a very beautiful city, and it had fine architectural traditions. He knew of no way in which a small amount of expenditure could be made to produce so much satisfaction, and such a vast degree of pleasure to the people living in a city, as that by which the city was made beautiful. He believed that the great difficulties that had to be faced with the labour classes were due more than anything else to the entire failure in the past century to handle the problem of city growth.

At a meeting of the Dublin Rotary Club, Professor Patrick Abercrombie, of Liverpool University, spoke on the subject of interdependence of housing and transport, and is reported in the "Irish Times" to have said that the problem of re-planning Dublin appeared to him and his partners as one most deeply interesting to tackle. Two things made them feel that there was a possibility of arriving at a solution, the definite character of the housing problem and the fact that during the last fifty years Dublin had not grown to any extent on its outskirts. According to the departmental report, there were 64,000 persons to be re-housed, and that gave something practical to work upon. Dublin had a unique chance of being improved without the enormous expenditure necessary in so many English towns, which had so expanded with prosperity that to reach the country it was necessary to cut through comparatively new districts. Those who laid out the town towards the end of the eighteenth century had extraordinarily fine ideas. He could hardly say that he knew even a Continental town which had a circular road laid down without it having been secured by the

removal of fortifications. Dublin's circular road was a piece of most enlightened planning, and he was sorry he did not know who was responsible for it. It gave communication between different parts of the city outside the centre in a very direct and most admirable way, and to construct a road like that nowadays would have been impossible without enormous expenditure. Subtracting all the non-residential areas Dublin had a population density of 95.8 persons per acre. Taking 75 persons per acre, a basis put forward, he believed, by the Housing League, and endorsed by many places, 59,000 persons should be taken out of the centre of the town on to virgin soil in order to relieve the town's congestion, leaving four or five thousand to be re-housed in the city itself. That brought one to the problem of getting people to the outskirts, the essence of the scheme, of which the chief was the interdependence of housing and transport. The chief reasons one would urge for taking people outside the city were that on the outskirts land could be bought cheaply and in large tracts. That enabled plots, increased in value by development, to be re-sold and recoup some of the original outlay. Moreover, the development of a new type of suburban housing outside a town had an enormous effect not only upon those who lived on the outskirts, but upon people in the town itself. Though town planning might restrict the number of houses per acre to 20 or 15, it opened up a larger tract of country than a system under which, perhaps, 50 houses might be placed on an acre.

It was of no use providing people with houses in the country unless they could get into town for their work and amusement. In Paris there was an excellent example of what one liked to see—one or more great avenues leading from the centre of the town out into the country. Paris inherited its great avenue, the Champs Elysées, from Royalist days. Broad avenues of that kind enabled one to run a quick service of trams on an independent line right from the outskirts to the centre of the town. Two of the other competitors, one in the United States and one in England, adopted the same idea, he was pleased to say. In Dublin it was possible to adopt such a plan with comparatively little cost. With care in revision in planning it should be comparatively easy to open up such avenues, say towards Cabra and Crumlin in particular. Something of the kind was to be seen in Liverpool, where the tram track was laid in grass down the middle. It cost less to lay in that way, and, with the great width of the road, tracks for trams which only stopped, say, every quarter of a mile could be laid. In Belgium, by contrast, they had gone in for providing cheap facilities of transit between town and country. The whole country was covered with a network of trams running by the side of the road, and that system, combined with cheap workmen's tickets, used more in Belgium than in any other country, had resulted in housing the work-people further from their work than in any other country in Europe. All the workmen had gardens, and became very independent of fluctuations of the labour market. In Dublin they had a most excellent plan on which to base such improvements in the circular roads and the excellent series of radial roads. He knew no English provincial town which could compare with Dublin in that respect, but they must see that their splendid main roads were not encroached upon. As soon as one crossed a certain line—it might be the municipal boundary—they saw Drumcondra avenue change into a narrow country lane, with buildings placed up to the building line. As soon as development took place they would have that fine road blocked and choked and the transit system spoilt. Steps should be taken to preserve the existing roads, which were being destroyed, and would be jammed quickly when great suburban development took place, as it undoubtedly would within the next few years.

They would like to see also projected another outer circular road, as a natural corollary to the opening up of great tracts of land with new transit facilities. The natural sequence was connection, without going through the town, between those outlying suburbs. That sug-

gested that new roads of circumferential nature should be planned to make easy connection between one suburb and another. They need not have trams: they might have motor-buses. Queen's Road in Liverpool was constructed to relieve the centre of the town from traffic going to the docks. It was not suggested that expensive schemes should be undertaken at the present moment, but steps should be taken to prevent things being done which, though in themselves excellent, might interfere with a larger scheme in the future. Professor Abercrombie said that some of the derelict sites in the city should remain for a time: they would gradually be absorbed with the shifting of population inside the urban area, as prosperity enlarged the business area and absorbed housing accommodation. Some people had to live in the centre of the city. At the same time, the cost of the derelict sites should be taken in conjunction with the fact that they would develop new effects and frontages, which would be more remunerative than derelict spaces. In conclusion, his chief point was that when they were re-housing people it was not sufficient to take plots here and there and carry out admirable schemes without relation to a general scheme. The idea for which all should work was to refer all housing schemes to a plan at the back of the heads of their councillors, gradually working to it. If the competition brought that about they would owe a great debt of gratitude to Lord Aberdeen for initiating it.

## ILLUSTRATIONS.

### "WESTON ACRES," WOODMANSTERNE.

This charming design by Mr. Sydney Tatchell speaks for itself, and with the plan appended, needs no further description. The drawing was hung in this year's Royal Academy Exhibition.

### OLD WOODEN HOUSE, YPRES. [INTERIOR OF THE CHURCH, DIXMUDE.]

Our reproductions from Mr. Brangwyn's original drawings being prepared by way of photography and lithography, do not quite convey the effect of the woodcuts in the book on "Belgium." We owe an acknowledgment of our indebtedness for permission to reproduce the drawings to Mr. Brangwyn, the Fine Art Society, and Messrs. Kegan Paul & Co.

## THE CONCRETE INSTITUTE.

THE opening meeting of the Concrete Institute was held on Thursday, November 23, in the Lecture Hall at Denison House, 296 Vauxhall Bridge Road, Westminster, S.W., when Mr. F. E. Wentworth-Sheilds, M.Inst.C.E., delivered the following Presidential Address.

I have first to thank you for doing me the honour of electing me as your President. I should like to add that I am conscious of taking office at a time when the work of societies like ours is of national and imperial importance. The European War, horrible and devastating as its effects have been, has produced in this and other countries a wave of energy and enthusiasm for the better study of science and the arts and their application to industry. And this is not to be wondered at. There may be some who say, "Let us concentrate all our thoughts and energies on winning the war, and on nothing else. Science and art are of little importance at the present time." But this is far from being the case. It is true that our first object must be to win the war, and that nothing must stand in the way of achieving it. But we now realise that this is, to a large extent, an engineer's war, and that science and the arts, industry and invention, play a most conspicuous part in it. In every branch of our Army scientific men have been pressed into the service to help with

their knowledge and experience. The same remark applies to the new Government Department which provides the munitions of war, and to the many factories and organisations which are helping it. The chapter of history describing what the engineer, the man of science, and the captain of industry have done during the past two years will, I hope, some day be written. It will certainly be of extraordinary interest. And may I add that the special branch of work fostered by our own Institute will show some very bright achievements.

But there is a special reason why we must regard the work of societies like our own as particularly important at this time. When the war is over, our next object will be to worthily maintain all that we have fought for and to make impossible a repetition of such a devastating struggle. This is a matter which will call for greater and wiser efforts, individual and national, than even the winning of the war will have done. It must not be supposed that all we have to do is to "crush the Germans" and that then our troubles will be over. It is doubtful, to say the least of it, whether any nation can be crushed, and this is certainly not the object we have in view. We are giving our energies, our treasure, and our lives to break the military tyranny of the Central Powers, and to establish the freedom of nations. And when peace is declared we must hold on to the strong position which every day we are gaining. To achieve this we must be ready to solve with energy and wisdom the many and serious problems which peace will undoubtedly bring, and in order to be ready we must prepare for them now. These problems will call for all the best brains that our country can give and societies like ours will need to put forth all their strength. To-night I want to consider with you one or two of these problems, and how we, as members of the Concrete Institute, can play our part in their solution.

*After-war Problems.*—When the war is ended we shall find ourselves faced with an enormous financial debt. Even by the end of next April it is estimated that our war loans will have amounted to £3,400,000,000. Consequently, taxation for many years will be extraordinarily heavy. We shall, of course, meet this taxation out of the profits made in industry and trade; but here we shall work under difficulties, because other countries with whom we have traded in the past will be similarly burdened, and will be by no means good customers. Then, again, the delicate machinery of international credit, which was so rudely shattered when war broke out, will take time to repair. Shipping will probably be scarce, and consequently both imports and exports will be delayed. All these and other causes will tend to produce unemployment, with its attendant difficulties; and there is, of course, the danger that these difficulties may be further complicated by the anxiety of the workmen to place all kinds of restrictions on output.

The immensity of the problem involved in resuming, after the war, our usual commercial life will be realised when we consider that Great Britain alone has been diverting the activities of over 10,000,000 men to unproductive and, worse still, to destructive purposes. To restore these activities to normal paths in face of these difficulties will be a task requiring energy, foresight, and wisdom on the part of every member of the community.

And how, then, are these difficulties to be met? In a word, they must be met by economy—economy, not only in the restricted sense of curtailing expenditure and denying ourselves the comforts and luxuries of life, but also in the broader sense of ordering each man's work in the way that Nature's laws direct, so that there shall be the least possible waste and the greatest possible output of things that are really valuable to the nation, to its character, its health, and its happiness.



*Economy.*—Now, one of the most obvious dictates of economy is that we all should curtail our luxuries and reduce waste of our necessities. A good many of our luxuries have already gone, and it will be agreed that we are little the worse for their loss. This is especially true of the luxury of idleness. It is good to see that many who before the war enjoyed unearned incomes, and did nothing in return, have developed a sense of citizenship, and would now feel ashamed if he or she were not doing their utmost. We hope and believe that this spirit of citizenship will live and grow.

Again, Mr. McKenna has pointed out that, comparing to-day with the period 1872-6, when wages were abnormally high, we are now consuming per head per annum, 8 per cent. more wheat, 11 per cent. more meat, double the quantity of tea, nearly double the quantity of sugar, five times the amount of cocoa, and 50 per cent. more tobacco. We may perhaps regard these things—even the tobacco—as necessities to a healthy life, but are we sure that there is no waste in their distribution and consumption?

Then, again, most of these things are imported. Are we sure that there is no waste in the production and distribution of commodities which we provide in order to pay for them? This is perhaps the most important matter of all. There is no doubt that the nation which will recover most rapidly from the ruinous wastage of war will be the one which can produce the greatest output of marketable goods at the lowest cost. And how will Great Britain stand in this respect?

I do not want to be numbered among the croakers who decry everything that is British and who say that our education, our science, and our organisation are neglected, and that we are a decadent nation. The war itself has given the lie to such a statement. But the war has also taught us that the courageous individualism, and the keen competitive spirit which has done much to develop our national strength, has its limitations, and that in future it will be necessary to organise our manufactures and trades on more scientific and co-operative lines than ever we have done in the past.

*Scientific Research.*—For many years we have been dimly conscious that most of our industries could be more economically worked if we gave more attention to scientific and industrial research; but it seemed to need the European war to make us take vigorous action in the matter. It must be owned that previously our achievements in this direction compared unfavourably with those of some other nations. The National Physical Laboratory was established in 1900; but with a grant of only £4,000 per annum its usefulness was necessarily limited. It is true that our Government has contributed to the funds of the Engineering Standards Committee and of the Imperial College of Science, both of which have done a certain amount of research work. But when we consider that the American Government has been in the habit of subsidising their Bureau of Standards to the extent of nearly £100,000 per annum, our own national expenditure on such work seems to have been poor.

But in July 1915 a special committee of the Privy Council was formed with a strong Advisory Council, with Sir William McCormick, LL.D., as Chairman, and empowered to spend £25,000 in 1915-16 on scientific research.

This body has already done good work. It has helped researches which had been already undertaken by various scientific societies and private firms, and has encouraged new ones. One research of great interest to ourselves is the matter of deterioration of timber, metal, and concrete in sea water, which is being investigated by the Institution of Civil Engineers. The Concrete Institute, too, has not been idle, and with the help and co-operation of the professors of several British universities and technical colleges it has drawn up a most useful programme of tests to ascertain the best

way of using various concrete aggregates obtainable in large quantities in all parts of the country. Briefly, the scheme is as follows: Concretes will be made from a variety of aggregates mixed in the familiar proportions of 1: 1½: 3 and 1: 2: 4. Others will be made equally rich in cement, but with the proportions of sand to stones varied. These concretes will be tested for strength, permeability, and other properties. In this way it is hoped to discover not only the relative value of various aggregates but also the most advantageous way of using them. It is evident that such a research will be of untold value to the designer, to the builder, and to the community at large.

Our Council have had several interviews with the Government Research Council on this matter, and are confident that we shall receive assistance from them in this good work. We shall also ask for assistance from those who are interested in this particular industry, and I am sure we shall not ask in vain.

There are, of course, very many other subjects for research which our Institute can usefully promote as soon as our funds and organisation will permit. Indeed, they are too many to mention here. But I will briefly allude to one or two which are of more than ordinary interest. One is a line of investigation which has been taken up by Professor Coker, of University College, London, and described by him early this year before the Royal Institution. He has taken advantage of the discovery of Sir David Brewster a hundred years ago, that transparent materials when stressed become doubly refractive.

Professor Coker has devised a most ingenious optical apparatus by which a beam of light passed through a transparent model and also through an arrangement of Nicol's prisms becomes coloured, the colours varying with the intensity of stress applied to the model. In this way the distribution of stress on any section of the model can be accurately determined, and from the information thus obtained the model itself can be improved, so as to make the distribution of stress more even, and waste of material can be thus avoided. At the Royal Institution the lecturer applied his principle to transparent models of such things as an eye bar, a thick cylinder, a cog wheel in gear, and even a roof truss with riveted joints. It is evident that such an aid to the difficult problem of determining the exact state of stress in any part of a structure will be of untold value to the designer.

Again, one of the most important recent investigations on Portland cement has been made by Mr. Nathan C. Johnson, of New York, and published in the "Engineering Record" and "Concrete." By means of the microscopic examination of various concretes he has ascertained that, generally speaking, the chemical combination between water and cement in mortar or concrete is exceedingly imperfect, and that only about 25 per cent. of the clinker is properly hydrated. He suggests that an enormous economy could be effected if this could be improved, as probably the 75 per cent. of uncombined cement is useless except as a pore filler, which for this purpose might with advantage be replaced by a stronger and cheaper material. He further shows that, although this want of proper hydration is probably aggravated by insufficiency of water and of mixing, it is difficult in our present state of knowledge to avoid it. He throws out, however, some suggestions for possible improvements in this respect, and gives results of his own investigations. He points out that one impediment to proper hydration, as revealed by the microscope, is the tendency of the cement particles when mixed with water to cohere into groups, and thus avoid proper contact with the water, owing to the surface tension of the liquid itself. By the addition of certain other liquids, such as alcohol or ether to the water, the surface tension is reduced, and the cement particles are better dispersed in consequence. The practical advantage of such added liquids is shown in testing the

crushing strength of concretes made with and without the addition of such liquids. For instance, with 5 per cent. amyl alcohol added to the mixing water the strength of the concrete was increased about 70 per cent. at two months. It is not yet possible to point to any such substance which can be added to concrete economically, and without fear of detrimental effect, but it is clear that the subject is of the first importance, and calls for further research.

This is the more evident when we consider that the uncombined cement in a concrete is not only wasteful, but may even, under certain circumstances, be dangerous. This is clearly shown in a paper read by Mr. A. H. White before the American Society for Testing Materials. He describes investigations and experiments that seem to show that concrete, if alternately wetted and dried, is made to expand and contract, the net result being a gradually increasing expansion, and that if the process is repeated often enough disintegration may result. This disintegration is explained by him as follows. When water enters into the pores of dried concrete, it combines with cement clinker which has as yet been unaffected. The result is that the concrete is expanded and the pores filled up, whereupon the action ceases until the concrete is dried again. Then the concrete once more becomes porous, and on re-wetting the expanding action is repeated. It is rarely, of course, that deterioration from this cause becomes serious in practice but instances of such deterioration are not unknown, especially in the case of marine works and of pavements exposed to weather. They can probably be guarded against by the use of some protective coating, but this, again, is a matter which requires investigation.

The researches to which I have here alluded may all be classed as industrial, in that they may be expected to introduce economies in some industry (the building industry in these cases) within a measurable period. It is important that researches which are more purely scientific and less utilitarian should not be neglected. Their educational value is very great, and, moreover, their application to industry is probably only a matter of time and invention. Witness the case I have just cited of Professor Coker's application of the phenomenon of double refraction. Such purely scientific researches cannot, perhaps, be undertaken by societies like our own. But they ought to be carried on in every important laboratory and encouraged by grant of public funds.

On the other hand, industrial researches—those, namely, which may be expected to produce quick and practical results—should be undertaken under the guidance of men who not only have scientific knowledge, but who are also acquainted with the actual working of the industry for whose benefit the research is needed. To carry this out effectively means co-operation between the laboratory and the works, or, say, between the professor and the manufacturer. It means even more than this—namely, co-operation between the various manufacturers who have hitherto been inclined to look upon each other as rivals, and to conceal from each other any knowledge and experience they may have gained. In this connection it is encouraging to read in the Annual Report of the Advisory Council on Research that “some manufacturers, at any rate, are beginning to realise that their most numerous and dangerous enemies are, not their fellow-countrymen but powerful combinations of manufacturers in other countries, supported by every device of rate and tariff that their Governments can provide.” And again: “In the numerous conferences we have had with representatives of different industries, we have been impressed with the spirit of co-operation which is growing up, and the willingness to accept our suggestions for the initiation of research for the benefit of the trade as a whole.”

*Education.*—Although a great deal has been done in this country to improve the system of primary education for our working classes, it is evident that more remains to be done if we are to continue to hold our proper place

among the nations in social and commercial life. The State now undertakes and insists upon the education of children up to the age of fourteen. Unfortunately, a large number then take up blind-alley occupations, which offer them high wages but no training, and leave them two or three years later almost incapable of learning anything which will be of real value to them in after-life. Even when a boy is apprenticed to a trade at sixteen years of age he is not taught as he should be. It is true that in all our large towns evening classes are established at which he can learn many useful things, but most boys are too tired to derive benefit from lectures after having been at work for ten hours or more. It is generally felt that some better system is needed, under which a lad will continue his education, and not interrupt it just at the time he needs it most. The difficulties in introducing such a system are that it will involve increased expenditure to the parents or to the State, or both, and that it will produce a shortage of labour. To get over the latter difficulty, it has been suggested that we should adopt some such scheme as has been successfully carried out at the School of Pennsylvania, U.S.A. Under this arrangement a four years' course of training is given to a youth after he leaves his primary school at the age of fourteen. The first year is spent wholly in the trade or continuation school, and the boy specialises in those subjects which will best fit him to take up his trade in the shop. The next three years are given partly to school and partly to shop work. During the time that the schools are in session each boy attends every alternate week, the remainder of the weeks being spent in the shop. The special point of the scheme is that the boys are paired in each trade so that while A is in school B, his mate, is in the shop, and vice versa. The scheme is, in fact, a half-time apprenticeship without the difficulties which attend the work of a single boy working half-time, i.e. for so many hours a day or so many days a week. The work of the two paired boys has been proved by experience to be at least equivalent, as regards value of output, to that of the single boy working full time.

We have not yet out-lived the day when education was looked upon as a privilege of the upper classes, and when it was considered that national schools would have a demoralising influence upon the poorer citizens and produce among them discontent, and even inability to perform the humbler kinds of labour. It is scarcely yet recognised that there is no sort of labour which cannot be made more interesting and more productive by education and scientific training, and again, that if our civilisation is to be a real national progress, the development of the mental and spiritual faculties of each of us must be an important item in our national programme. When these facts are clearly recognised, the country will no longer grudge the necessary expenditure on training its boys and girls more thoroughly than it does now, and it is certain that such expenditure will be amply repaid.

(To be continued.)

## TOWN PLANNING OF GREATER LONDON.—II.

At University College, Gower Street, Professor S. D. Adshead, M.A., F.R.I.B.A., delivered on the 14th ult. the second of six weekly lectures on “The Town Planning of Greater London after the War.” It was chiefly an historical survey and the presentation of those statistics which must be understood before any attempt is made to create a comprehensive plan.

Of roads constructed before the nineteenth century it was not considered necessary to say much beyond the fact that all the main roads leading out of London have been determined by the ancient Roman plan, and these, allowing for occasional deviations in detail, have kept their original line. The direction of the Roman roads was most skilfully chosen and such deviations that have

in course of time occurred are in no sense improvements, but on the other hand had most unfortunate results.

Roads were repaired in a local and disorganised way until the middle of the eighteenth century, when turnpikes were systematically established. In 1825 a Bill was passed called "An Act for consolidating the Trusts of the several Turnpike Roads in the neighbourhood of the Metropolis, North of the River." It marked the culmination of a long drawn-out political struggle, during which many important new roads were constructed in North London by the Trusts.\* The year 1835, saw the passing of the great Highways Act, which from the point of view of consolidation was a retrograde measure, though in respect of conferring responsibility on local authorities a great advance. The basis of the Act was to place highways under the direction of parish surveyors and to provide for the necessary expenses by a rate levied on the occupiers of land. By the Metropolitan Management Act, 1855, every Vestry and District Board became a Highway Authority.

In 1840 all public interest in the making, the preservation and in the repair of roads suddenly ceased. Railways and the projection of more railways monopolised everyone's attention. The first railway was that laid from London Bridge to Greenwich, and this was quickly followed by the London and Birmingham line. The great railway period may be said to embrace the fifteen years subsequent to 1840.

The effect of the railway on the growth of London was at first somewhat curious, for whilst during the years 1840 to 1860 there was no great development of the suburbs, London itself extended very rapidly. Residence in London had not before the middle of the nineteenth century been encouraged. But with the laying of the railways there was a stampede from country to town. Belgravia, in the south-west, had just been laid out, and developments had centred north-west to Paddington and west over the Edgware Road. The development of Kensington, Brompton, Camden Town, Holland Park and Bayswater quickly followed, and these areas may be regarded as the peculiar perquisites of the railway companies, which in their infancy brought people to town. It was not until the sixties that the great pressure of the first residential ring was seriously felt and also the possibility of a diurnal journey to and from town by railway fully realised.

From 1860 onwards there was a rapid development of the suburbs. Places like Sutton and Croydon grew rapidly at this time. Sutton in 1835 had a population of 1,100, and in 1861, 3,200; but during the next ten years it increased to 8,000. Croydon had in 1831, 12,500 inhabitants, 20,355 in 1857, and 55,652 in 1871; the population of Croydon at the last census was 169,559, and of Sutton 21,275.

The first developments of the suburbs by railways left a loose band round London, following approximately Swiss Cottage, Shepherd's Bush, Wallham Green, Brixton, and Peckham. This area, which was neither London centre nor London suburb, developed no faster than the surrounding hamlets and towns. To fully develop it, London had to await improvements in the bus service and the inauguration of trams.

The increased facilities for intercommunication have accounted for a wonderful migration in the population. Since 1881, when the railways for the first time commenced seriously to undertake improvements in their suburban systems, there has been an increasingly rapid growth of population in the suburbs, with a corresponding decrease in the area of the administrative county.

Not only has the increase in the population of the administrative county rapidly declined, but the last census shows that what up till 1901 had been a growth has between 1901 and 1911 become an actual decline. Those boroughs in the administrative county which have lost inhabitants to the greatest extent are:—Holborn, 24 per cent.; Finsbury, 22 per cent.; Southwark, 12 per cent.; Marylebone and Stepney, 10 per cent.; West-

minster, 9 per cent.; and St. Pancras, 6 per cent. In the urban districts within the outer ring extraordinary changes have occurred in the distribution of the population.

Generally, it may be said that during the years 1891-1901 the principal migration was to what may be called the urban districts of the outer ring, such as Willesden on the west and Ilford and East Ham on the east. During the next ten years, on the other hand, a great development of the more rural areas may be observed. But the increase does not end here. Improved railway facilities have led to large influxes of population into more remote districts such as Eton, Marlow, and the Chilterns, while large numbers of people now travel daily to the Metropolis from places as far distant as Southend, Bedford, Oxford, Reading, Brighton, and Worthing. Generally, it may be said that the population of the Metropolis has during the last decade diminished in the centre and increased outwards, the causes of the outward migration being the improvements that have been effected in suburban mechanical transport, coupled with an energetic development of selected areas.

But looking more intimately into this outward migration of the population we find that, although the tendency has everywhere shown a rapid increase in population throughout the outer ring, certain favoured areas have enjoyed a greater or more rapid increase than others, and that such places have not necessarily maintained the same rapidity of growth through more than one decennial period. No doubt such fluctuations are primarily brought about by the new and improved lines of communication which are constantly being introduced, and which encourage rather than arrest the restless habits of modern society, which is constantly demanding a change of residence. It is found that an attractive spot in easy communication with the Metropolis will rapidly develop, that ten years is about the limit of its first period of prosperity, and that the tendency is for newer and more attractive developments to compete seriously after ten years' growth.

### THE WAR FOR HEALTH.\*

By the Hon. Sir JOHN McCALL, M.D., Agent-General for Tasmania.

IT is with a good deal of misgiving that I have consented to address this meeting of members of the Institution of Sanitary Engineers and their friends. During the last two years one has not been called upon to speak to such gatherings very often. A great deal has happened since I last had the privilege of addressing the members of the old Institute, and great changes have occurred since then, not only with the Institute, but practically all over the world. You have become a Corporation and ceased to be a limited company; the word limited was misleading and led many to think that the Institute was a sort of trading concern when in reality it was nothing of the kind, but simply what it remains—a body of men qualified as sanitary engineers bound together for the advancement of their branch of science. This is the first meeting of the Institution's friends held since the change was effected, and I am sure we all join in congratulating the Institution and express the hope that under its new constitution it will carry on the good work it has been doing for some years past. No doubt the war has scattered many of the members and the work has been interfered with, but in repairing the damages wrought by the war much will require to be done by individual members, and the Institution as a whole will not fail when called upon to assist them in their work. This terrible war, started by Austria with Germany pulling the strings, has opened the eyes of the world who were beginning to believe firmly that the European nations had passed from barbarism to a fairly high state of civilisation, and they now recognise that the margin between civilisation and

\* A Paper read before the Institution of Sanitary Engineers, at Caxton Hall, Westminster, on November 9, Mr. A. P. I. Cotterell (Past President) in the chair.



savagery is much narrower than they had supposed. Germany has thought fit to treat solemn written treaties as mere "scraps of paper"; the Germans have gone in for a policy of frightfulness to terrorise their opponents, a system of frightfulness that was so brutal that for a time the world was staggered and general condemnation was expressed. We all know that many men at war, when their blood is up, will commit the most outrageous deeds, murder being by no means the worst, but in this case inquiry established the fact that these deeds broke out all along the line on a certain day, and when it was found they were damaging Germany in the eyes of the world, they ceased, or, rather, came back to normal all along the line at the same time, making it clear that they were both the result of a general order from those in authority, and it should be our duty to find as many as possible of those responsible for those orders who survive the war and see that they are properly punished no matter how high their position may be. The conventions by which it was supposed civilised nations could be bound have been broken, and the war has shown to what depths of treachery, lying, and cruelty a baffled enemy hitherto thought to be cultured will sink. Of course Germany did not for a moment think that a Liberal Government in Britain would stand by her treaty to protect the neutrality of Belgium, and further, they believed it possible Belgium would fold her arms and let them through unopposed to France. They saw Ireland on the verge of civil war; they were confident a successful revolution would start in South Africa, also in India and Egypt, and they were so badly advised by their self-satisfied spies that Canada, Australia, and New Zealand would take advantage of the opportunity if England joined in the war, that it was certain out of cowardice to stand out and let them overrun every other part of the Empire. All their prognostications have proved to be wrong; they find a united British Empire with the strongest Navy cutting off all their shipping and practically all their outside trade, and a greater Army created and coming to the assistance of their opponents than any of us ever dreamed would be put in the field by us. They have, indeed, created a Union of our Empire which it will be impossible to dissolve. The Germans are an industrious people, and they worked hard to secure commercial supremacy, and by a method of "peaceful penetration" they had gone far to establishing a great hold on the trade of the world. When I saw in my travels through the United Kingdom the quiet way the people of this country were carrying on their competition with Germans I felt there never would be war between England and Germany, for the latter, by their push and want of serious opposition, were getting all they could reasonably want. By their haste to secure more than reasonable people would want, they have put themselves back commercially for, I should say, at least a hundred years, always providing that the trade policy of this country and our Allies is directed by capable men; let us hope that by the time they regain a footing in the world's trade they will be civilised or that the independence of nations will be protected by a strong combination of Powers. That we should have done what we have shows we were not so decadent as many of us believed, for I think it is certain if we had gone on another score of years without a war, listening confidently to those who told us we could sleep safely in our beds, we would have been an easy prey for Germany unless we were to be saved by the fighting power of our Colonial Empire. As it is, our amateur troops have been able to more than hold their own against the trained legions of Germany. Our Colonial Empire has sent to fight with us an army in numbers twice as large as the trained forces of this country before the war, and, answering to the call of the late Lord Kitchener, our Army has been increased ten-fold.

We are indebted to the Kaiser for forcing upon us this war in time to allow us to save our nation, and to unite our Empire in such a way that it would have been

impossible to do by any other means. Large numbers of Canadians, Australians, New Zealanders, and South Africans have come and fought side by side with the British soldiers and mixed with the people of this country; thousands have heard of these parts of the Empire in a way they could not have heard of them before, and many will want to go there after the war is over; by securing the surplus population from this country for these great British sub-nations we will strengthen the Empire and make it stronger and better able to hold together.

In Australia and New Zealand we have started our policy of excluding German trade from our shores, and we hope the same will be done in this country. Personally I would not give Germans a parliamentary vote, nor would I allow them to hold property in Great Britain. I mean new Germans, that is to say, while I would not compel decent living Germans to leave our shores I would go as near as possible to declaring those who want to come here after the war as undesirables. By their acts with poisonous gas, sinking passenger steamers like the *Lusitania*, and by killing innocent women and children in this country by dropping bombs from Zeppelins, they have surely justified us in describing them as undesirables. When the war is over and we come to count up our losses we will realise what a valuable thing human life really is. Let us hope this will lead us to value human life more than we have done in the past. We will have another war, but it will not be one for the destruction of human life but rather one to save it—the War for Health.

We will try to move those charged with the government of the country to make laws which stop preventable diseases wrecking the health of the people—more particularly those in our cities, towns, and villages, and also to prevent the high rate of mortality among infants both ante and post-natal. We must declare war against ignorance, apathy, and criminality. In that war my own profession must take the leading part. Your Institution must help us with the material foundations suggested by the profession of its members. The medical profession must bring all its influence to bear on contagious diseases, and you yours, on sanitary science. However brilliant the plan of campaign, however carefully worked out to the last detail, it will come to naught without the loyal and intelligent co-operation of the rank and file—in a word, the people must be educated in all measures they are expected to take to ensure the best results in public health; every citizen should be a sentinel, and every mistress of a household an executive officer. The Health Week inaugurated by the Institution and carried out by a Committee presided over by the Lord Mayor of London, under the auspices of the Royal Sanitary Institute, must be again revived after the war. Success in war depends on the individual soldier—man power—but it means men organised into companies, brigades, armies, and in many cases it is necessary to have the armies of several countries working in co-ordination. So in the War for Health it means that we must have organised man and woman power, in professional societies, educated masses, and co-ordinate efforts to secure sound administration of perfect Health Acts. The battle for health must include the strictest administration of the various Health Acts and the amendment of these Acts. We must start by extending throughout the whole Empire the training and registration of our midwives as has already been done in many parts; we must see that professional advice and care are available to the poorest woman carrying child; that proper attendance and, where necessary, a home for the mother to be in to bear her child. Then we must provide for the proper care of the infant right on until he or she is old enough to go to school, when the inspection should be continued in every school of the Empire. The infantile period inspection should be made by trained women who should have the right to call in professional aid when required. When boys are at school and have attained a proper age

they should be instructed on social questions and warned against the danger of contracting certain diseases by their own indiscretion. Girls should be similarly instructed and given the necessary warnings regarding the pitfalls they are liable to fall into.

Then, again, slums should be abolished, as is being done in many large cities; where possible, garden cities should be established and country life should be secured to all workers whose families require it for the health of their families.

Now, then, we have to battle for the care of the mother, the infant, the school child, and the family. The sanitary work, inspection of food, &c., I am not touching because I believe in most countries the laws already enacted are practically sufficient. What we should all remember is that many diseases have been eradicated, such as yellow fever in the Panama Canal district; there, it will be remembered, this great work was nearly abandoned owing to the number of men who died from this disease; it was found that the disease was conveyed by a certain mosquito. The mosquito was attacked and the men protected from its approach, with the result that the work was completed, and this most unhealthy part of the world now enjoys a death rate as low as the more healthy parts of the universe. This indicates the necessity for research in all matters connected with the health of the people, and the result of such researches may make it necessary to amend our Public Health Acts from time to time.

To take charge of the health of the whole people of the Empire, and make their health a duty of the State so far as is necessary, means that an enormous additional sum of money will have to be found from public funds. It is not necessary for me to indicate how this money shall be raised, but I do say it must be found, and that it will repay the State many times over by the saving of human lives that will be effected; that it is necessary for the Empire and for the world that we should exercise greater care in saving lives should be clear to all at a time when the most valuable lives of our people have to be sacrificed in the defence of our Empire.

As a member of one of these professional societies I am glad to see the sanitary engineers of this country banded together ready to take up its part of the work. When the time comes for us to start our second war—the War for Health—I wish it God-speed.

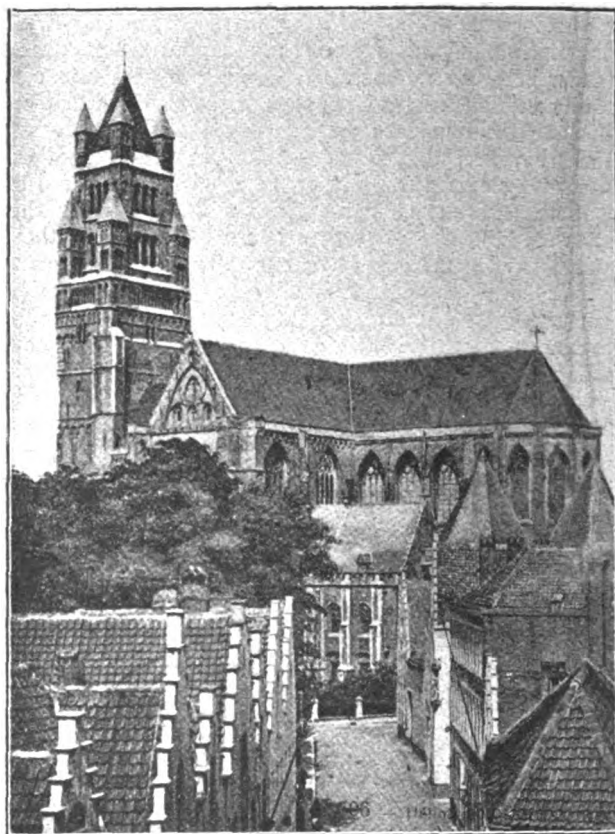
#### ART IN LONDON.

##### DECORATIVE PAINTINGS BY GEORGE SHERINGHAM.

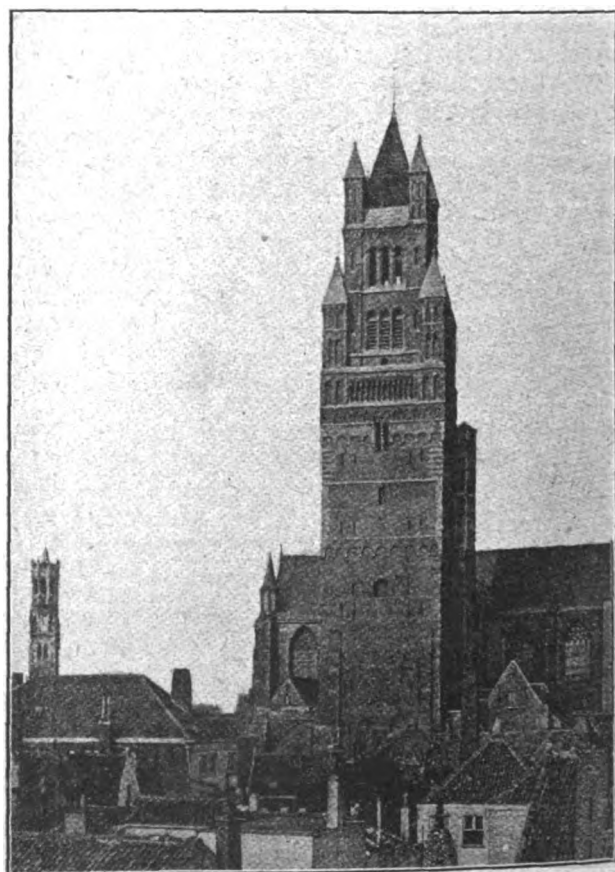
If we regard this exhibition of works as (for the most part) merely means to an end, animadvertive criticism may be avoided to a much greater extent than would be otherwise possible. For the sketchiness of a mere sketch may be readily justified. But still, however regarded, this the most recent exhibition at the Leicester Galleries is very inferior to the general run of what we see there. Mr. Sheringham's panels are on the whole far more satisfactory than the fans. "Cremorne" is however a good design, and "The Daughter of Shah-Zemar" is a passable one; "Poissons d'Or" and "The Feast of Virgo" again are good subjects for a fan. Of the panels the best are "The Street of the Merchants," "Vauxhall," "Sea Flowers," and "Panneau exotique"; the last-named would form an excellent screen-subject and is most effective in the rhythm of line, the quietly-rich tones, and in the ensemble. "Pomp" is one of the best of the exhibits in composition, colour, and general tonality. A book-plate design en médaillon is another of the few really good exhibits. "Arabesque" shows arches such as were never seen on sea or land; in No. 54 we fail to see the "colour-note," whether neutral or incisive; "Rococo fan" has a good subject, and assuredly one that is rococo as treated. The "Drapery and Nude Study" exhibit is well modelled and well posed, but as much cannot be said for No. 37. Altogether this is not an inspiring exhibition.

#### BRUGES CHURCH BELLS AS CANNON.

THE Austrians have melted down most of their church bells, leaving only one to each church; but that was in their own country, and lamentable enough.



THE CATHEDRAL, BRUGES.



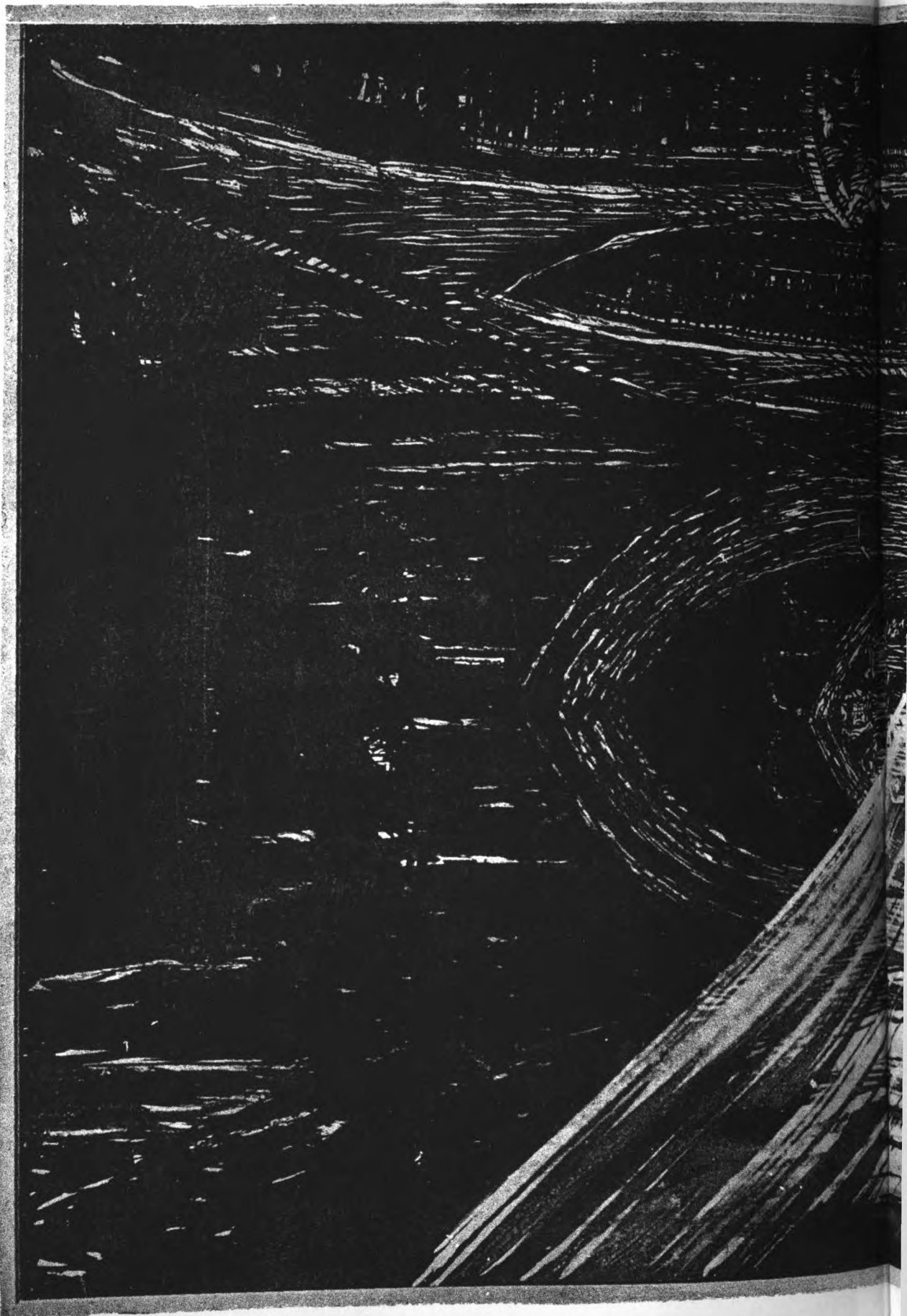
THE CATHEDRAL TOWER, BRUGES.

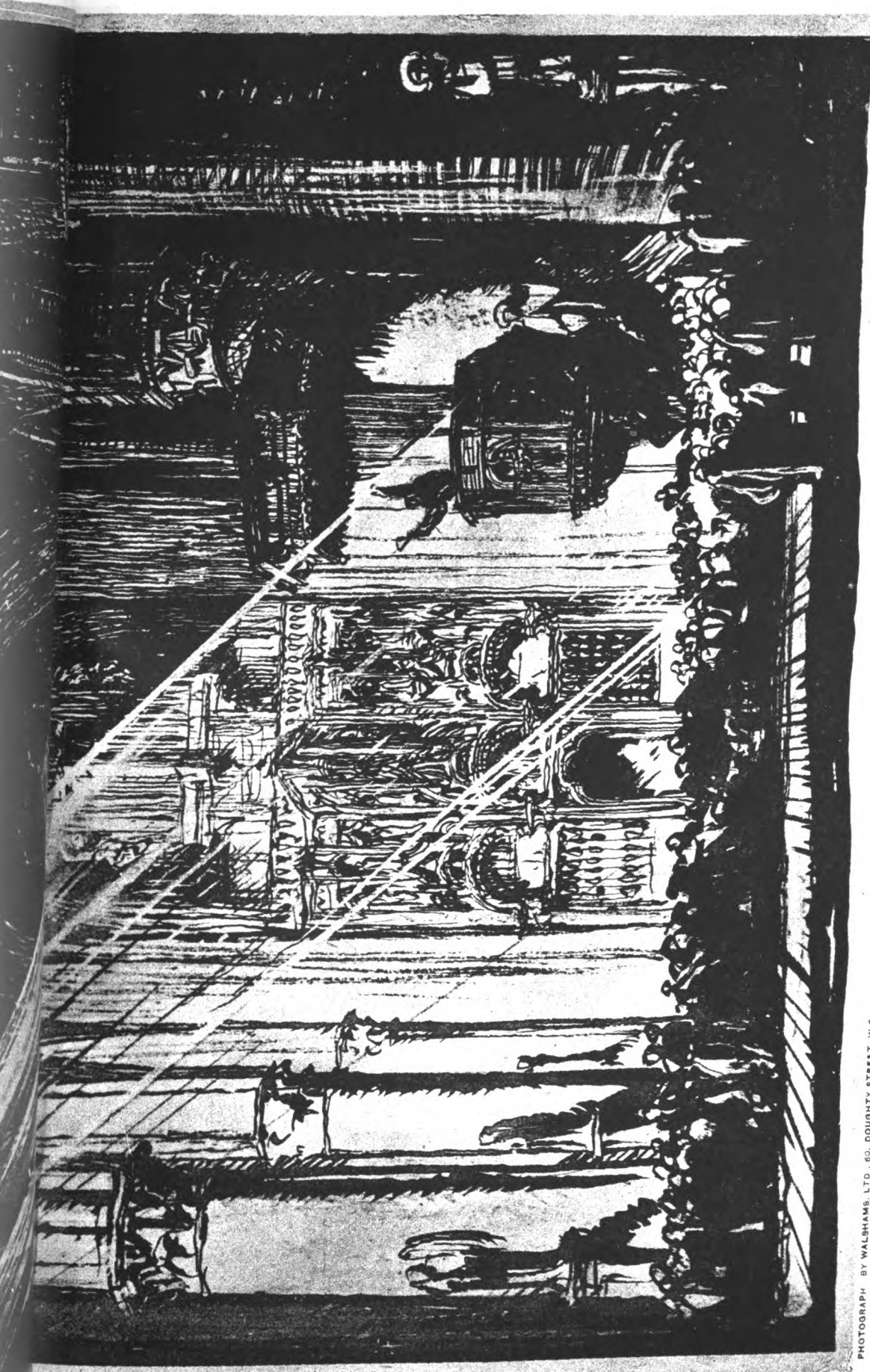
It is now announced that the Germans are submitting the bells of the Cathedral and churches of Bruges to

16.  
ON.  
1916



The Architect, Dec. 1st 1916.





PHOTOGRAPH BY WALSHAM, LTD., 60, DOUGHTY STREET, W.C.

INTERIOR OF THE CHURCH, DIXMUDE.  
MR. FRANK BRANGWYN, A.R.A.

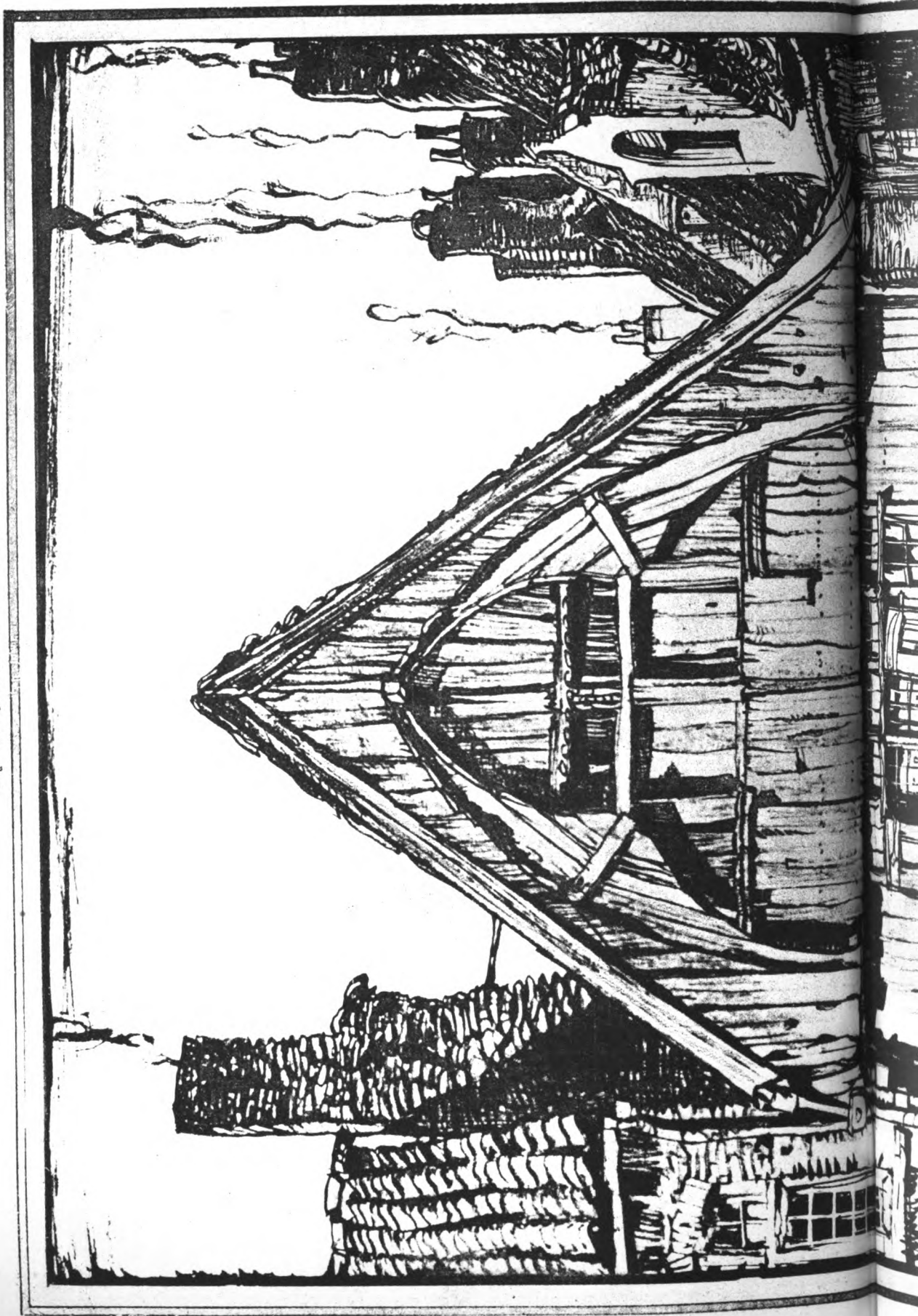
INK PHOTO: SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.

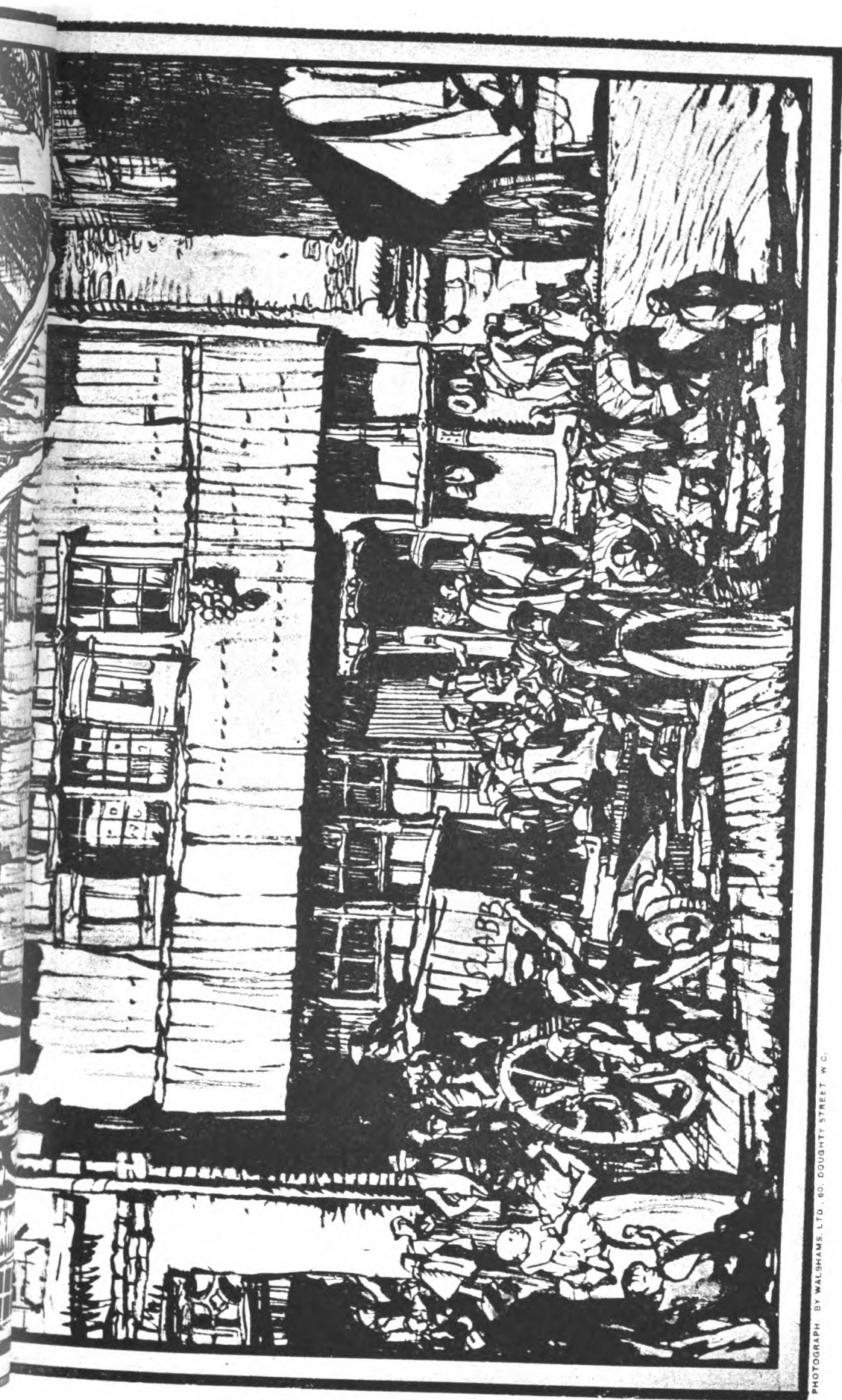






The Architect, Dec. 1st 1916.





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**OLD WOODEN HOUSE, YPRES.**  
**MR. FRANK BRANGWYN, A.R.A.**







"WESTON ACRES" WOODMANSTERNE : SYDNEY J. TATCHELL, F.R.S.A.  
*Architect. 13, Queen Anne's Gate, W.*

GARDEN FRONT

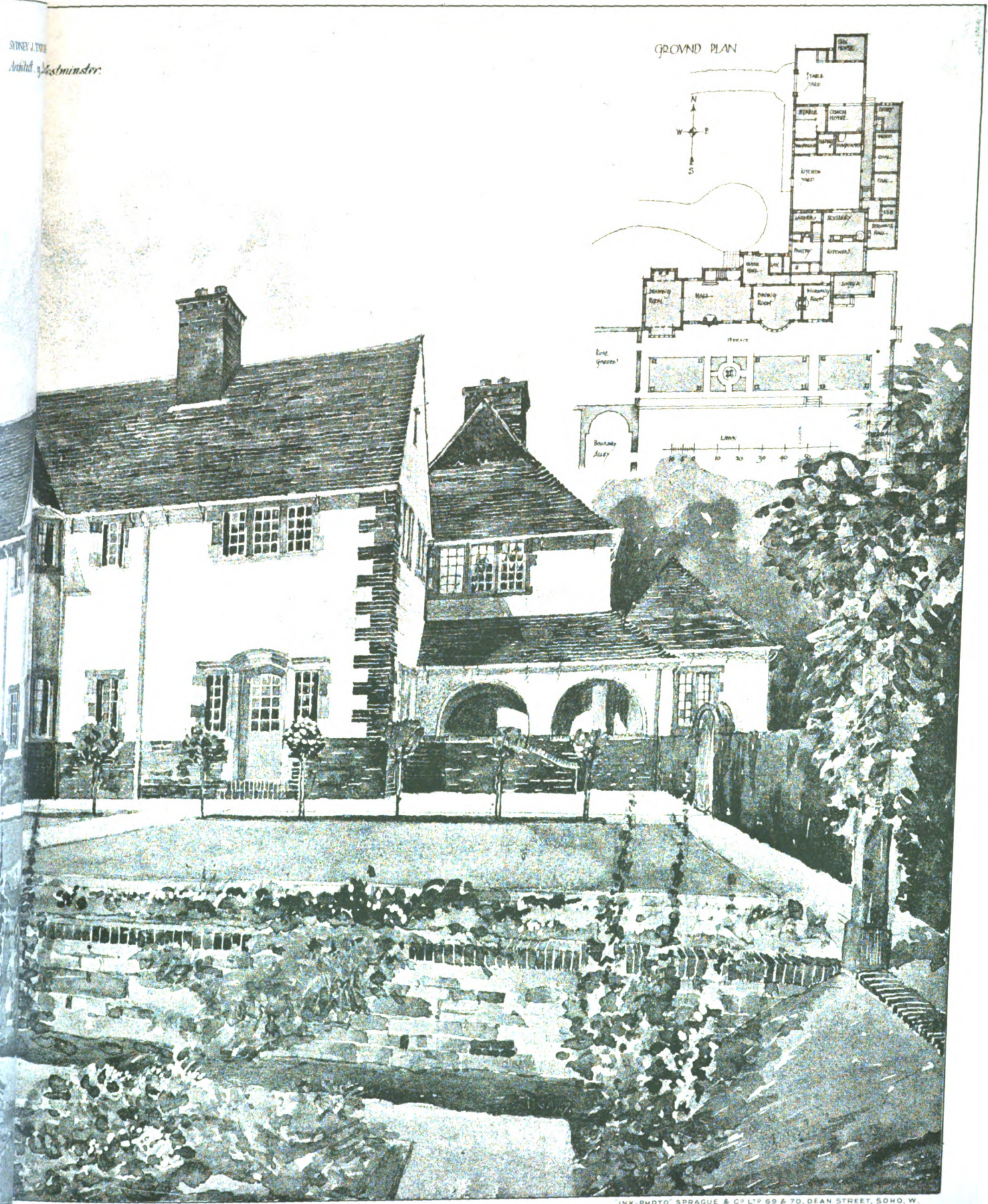


(Royal Academy Exhibition, 1916.)



1st 1916.

SYDNEY J. TAYLOR  
Architect, Westminster.



INK PHOTO. SPRAGUE & CO. LTD. 69 & 70, DEAN STREET, SOHO, W.





the same fate, and that those of Mechlin will most probably follow suit.

Bronze statues are also to undergo the same process; but though the Bruges ones are not very artistic, they are treasured by the townsfolk as memorials of their own celebrities, whose handiwork helped in the making of local history.

Visitors to Bruges in the past will not shed many tears over the loss of the Van Eyck, Memlinc, Simon Stevin, and Breydel and De Coninck statues, and would welcome the destruction of their pedestals as well.

### DIFFICULTIES IN ENGINEERING CONTRACTS.\*

By Sir MAURICE FITZMAURICE, C.M.G., M.A., M.A.I., LL.D.

THERE must be few engineers who have carried out undertakings of any extent who have not had, at some time or other, to lament failure or accident in connection with at least some part of their works. For many years I was fortunate enough to be engaged by many great engineers, and I cannot recollect any large undertaking which has not at times caused my chief considerable anxiety owing to accident on some portion of the works, or from alteration in design having to be made on account of unforeseen causes. Since I have been carrying out works on my own responsibility I have found a similar state of affairs, and I believe all engineers have from time to time experiences of a like kind.

I am not now speaking of great calamities or disasters such as the failure of the first Quebec Bridge, the first attempt at constructing the Panama Canal, the failure of the old Tay Bridge, that of the first attempt at constructing the Hudson Tunnel, or the complete failure of some reservoir dams. I am referring to those misfortunes which happen more or less on all works of engineering construction.

Although very often not of great magnitude, they cause the engineer, the contractor, and the client great anxiety and disappointment. The engineer in the case of accident causing loss of life, even although it may be in connection with temporary works for which he is not directly responsible, feels it very keenly, and probably thinks he might have taken, or caused to be taken, some precautions which would have prevented it. Although even a serious accident on works may not entail any extra cost to the engineer's client, it may necessitate such an addition to the time of construction as will seriously dislocate arrangements made for the use of the works, and may in that way be a cause of serious financial loss.

The necessity for alteration of design, or part of design, owing to unforeseen difficulties, is generally a matter which causes much anxious thought and trouble to engineer and client. Unfortunately, alteration in design is generally accompanied by increased cost and time. In exceptional cases unforeseen difficulties may necessitate abandonment of the work.

The question arises, Are engineers as a rule too optimistic in designing their work and in their estimates of time and cost? This question, however, only deals partially with the class of failures I am considering, and before going any further I want to clear the ground in connection with one important point.

Works of any size are generally carried out by contract, and the contractor employed has a very important bearing on the question. Probably every engineer would like to choose as contractor for any work which he has to undertake that firm which has previously carried out similar work for himself or for engineers he knows. This course is, however, one which cannot be adopted, except in a few special cases, owing to obvious reasons.

As is well known, there are two ways of obtaining contractors for works, either by open tender or by asking selected firms to tender. In the first case it is generally understood that it is quite allowable not to accept the

lowest tender if the firm has not the necessary experience and standing. There are, however, very often considerable difficulties in rejecting low tenders of unsuitable firms, and explanations to clients are often difficult. I have had experience of a firm tendering for work approximating in value to one million sterling who had no experience of the class of work tendered for, but whose financial and other references were good. Fortunately the tender was passed over. Later on, when the same firm obtained a small contract for somewhat similar work, amounting to about £35,000, failure took place before the work was two-thirds completed. I only mention this as an example of some of the difficulties which arise in open tendering. It is often very difficult to judge of the financial position and the capabilities of a firm of which one personally has no knowledge. Sometimes those who are given as financial and general references seem to rather more than stretch a point in favour of the firm inquired about, or the answers given are so vague as to be useless.

It might be considered that all difficulties could be avoided by asking selected firms to tender, and in such cases it is generally understood that the lowest tender will be accepted. The procedure is, however, often not satisfactory. It frequently happens that the client wishes to include in the selected list the name of a firm who has carried out to his knowledge some work in a satisfactory way, although of quite a different character to that being dealt with at the time. This is often the cause of great trouble to client, engineer, and contractor.

We all know contractors whom we would cheerfully accept without any question of reference, firms who at an early stage of the work recognise the necessity of a good staff and of providing all necessary plant, and who know that the initial cost thereby incurred is more than regained by the facilities obtained in carrying out the work and by saving resulting from curtailment in time of construction. It is probably due to the well-deserved profits made by such contractors that other firms without the necessary capital or experience are frequently tempted to tender for work which they are not capable of carrying out with satisfaction to the engineer or his client, or with profit to themselves.

It must not, however, be assumed that I am favouring in all cases the employment of the large contractors. I have had considerable experience with contractors in quite a small way of business who carry out the smaller contracts entrusted to them in a thoroughly satisfactory way, especially when they have laid themselves out for only one or two classes of work, when the principal can give personal attention to the matter, and when they resist the temptation to embark on undertakings beyond their capacity. Some of my most pleasant experiences in engineering work have been with such firms.

I do not know any more unpleasant position, both for contractor and engineer, than when it is evident that a contract is being carried out at a loss. In such cases the contractor, on the one hand, may be forced to carry out the work in a slow and unsatisfactory way, and the engineer, on the other hand, feels that he cannot well press the contractor to spend more money on plant and staff.

I have very shortly mentioned these difficulties with contracts as they are a source of real trouble, but I think I ought at the same time to acknowledge the great help which engineers obtain from many contractors. I consider that one of the most pleasant features of our profession in this country is the friendly and helpful feeling which generally exists between engineers and contractors. This is only to be expected when we know that many contractors and a large number of their assistants are connected with this Institution.

I now come back to the question whether engineers as a rule are too optimistic in designing their work, and in their estimates of cost and time. On full consideration of the matter I am inclined to think that we must sometimes plead guilty to this charge, although the optimistic view and under-estimates of cost and time are not always willingly arrived at. I do not know whether my experi-

\* Extract from the presidential address read before the Institution of Civil Engineers.





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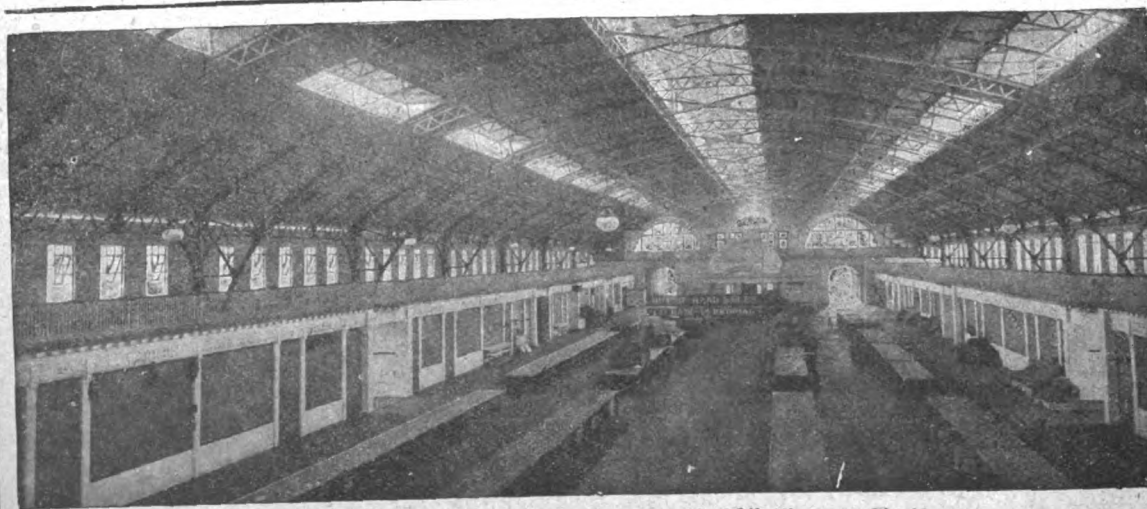
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ence on this point is the same as that of other engineers. I am well aware that even in works where all the details have been worked out with the greatest care, where unit prices have been carefully scrutinized, where the different stages of the work have been well thought out, where all possible local information has been obtained, that even then it is necessary to provide a sum of money over and above the detailed estimate to meet any contingencies which may arise, and to make some addition to the estimated time for construction. In some cases, when adopting this course, I have met with the statement, particularly when dealing with some Government or Municipal Authorities, "You surely, if the design has been properly gone into, do not require that large sum of money for contingencies"; or, "Surely you can cut something off the estimate for time of construction." One then explains the reason of money for contingencies and the added time for construction. After some discussion the client says, "Well, what it comes to is that if everything goes well the contingency money might be materially decreased and the time for construction reduced, and I would prefer that we took the risk of cutting both down." The engineer knows from experience that such a course is not wise, and that if things do not go right the conversation will probably be forgotten, but very reluctantly finds himself forced in some cases to reduce his estimate of money and time.

What are the reasons why engineers frequently find that their most carefully made estimates of both cost and time are exceeded? The principal reason is, I think, given by the hackneyed but true phrase which we often hear, that engineering is not an exact science. We are continually finding out more about the forces of nature, but as long as the world exists we shall not find out sufficient to enable us to make exact estimates of time and cost, and guarantee works against accidents.

What, shortly, are the principal matters which cause us trouble? The first one, in my opinion, is the small knowledge we are able to obtain of the conditions which exist below the surface of the earth on which everything has to be founded; secondly, the risk which it is necessary to undertake as regards conditions of weather while works are being carried out; and, thirdly, the varying quality of many of the materials we have to deal with. There is a fourth matter, which affects contractors more than engineers, namely, the difficulty of estimating the cost of materials and rates of wages for a long time ahead. This last also substantially affects engineers' estimates when there is a long interval between the time when estimates are made, and that when tenders are received.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### The Piecemeal Destruction of Rheims Cathedral.

SIR,—Whether it is a broad-minded spirit of tolerance or an avidity for free copy that leads you to allow silly letters in your "Correspondence" column I do not know, but I think you should exercise your editorial discretion and spare us some of those you print.

The letter of "Non-Ignotus" in your issue of to-day reaches the limit of ineptitude. Not only is it supremely silly, but a gross insult to our brave and sagacious Allies to suggest that they could stop the destruction of Rheims Cathedral if they would.

Your correspondent appears to have an arm-chair strategist's estimate of the effectiveness of aeroplane bombing raids, but has he not heard of the repeated and, we are told, destructive raids on Zeebrugge and Ostend? Yet these harbours still serve as good sally-ports for German destroyers and submarines to carry out their raids in the English Channel and the neighbourhood of the North Hinder.

If the British Government had provided General Joffre with sufficient men and munitions a year ago to carry on a Somme offensive from the sea to the Vosges, the Germans to-day would be probably out of range of Rheims, Laon, Noyon, and Bruges.—Yours, &c.,

November 24, 1916.

W. P. B.

[Some of the letters in our "Correspondence" column may be silly. That is a matter of opinion. But what does it matter? The writer of a silly letter likes to see it in print; and while it gratifies his vanity it does no harm, for the readers of "The Architect" have too much good sense and sound judgment to be influenced by the silliness.—ED.]

### BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### BEDFORDSHIRE.

*Bedford*.—House, Ivy Road, for Messrs. Jones Brothers.

##### CHESHIRE.

*Cheadle Hulme*.—No. 25 Gatley Green: additions for Messrs. Bagley & Gresty.

Mellor Street: alterations for Mr. T. Hooley.

##### DEVON.

*Plymouth*.—Cinema house, Camel's Head: enlargement for Mr. A. Davies.

House, Forest Avenue. Mr. A. Coles, builder, New Town Chambers, Old Town Street.

Shop, Nos. 2 and 3 Patna Place, for the Co-operative Society, Ltd.

##### DORSET.

*Swanage*.—House, King's Road. Messrs. Burt & Burt, builders, Railway Depot.

"Maryland": additions. Mr. L. D. P. Way, architect, High Street.

Stables, Station Arcade: additions and alterations, for Mrs. Brown.

No. 15 Station Road: alterations. Messrs. Parsons & Hayter, builders, Institute Road.

##### DURHAM.

*Easington Colliery*.—Proposed Wesleyan Church.

*Hebburn*.—Property, Hood and Lampett Streets: alterations for Messrs. Hawthorn, Lerbe & Co., Ltd.

##### ESSEX.

*Frinton-on-Sea*.—Exhibition Hall: additions.

##### GLOUCESTERSHIRE.

*Bristol*.—Pembroke Congregational Church, Clifton: extensions.

##### HAMPSHIRE.

*Botley*.—Proposed twenty houses for Botley and Hedge Parish Councils.

##### ISLE OF WIGHT.

*Carisbrooke*.—Council school: alterations for the County Council.

##### NORTHAMPTONSHIRE.

*Wellingborough*.—Factory, Compton Road, for Messrs. Summers.

##### NOTTINGHAMSHIRE.

*Sutton-in-Ashfield*.—House, Deedale Street, for Mr. L. Clay.

Premises, Outram Street, for Mr. J. Jarvis.

Proposed stables, Brookdale Road, for Mr. E. Banks.

##### WESTMORLAND.

*Kendal*.—The Manor House, Collin Field: restoration. Mr. J. Stalker, architect, 57 Highgate.

##### YORKSHIRE.

*Harrogate*.—"George" Hotel: additions. Mr. A. A. Gibson, architect, 5 Prospect Crescent.

*Wombwell*.—Proposed Council Drill Hall.

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# THE ARCHITECT

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## FORTHCOMING EVENTS.

Friday, December 8.

Town Planning Institute: Paper entitled "Housing and Town Planning Requirements at the end of the War," by Coun-

cillor Harrison Barrow, at 92 Victoria Street, S.W., at 6 P.M.

Tuesday, December 12.

University College, Gower Street, W.C.: The last of six public lectures on "The Town Planning of Greater London after the War," by Professor S. D. Adshead, M.A., F.R.I.B.A., at 5.30 P.M.

Wednesday, December 13.

Manchester Society of Architects: Paper entitled "Thirteenth Century Architects' Sketch Books," by Mr. Alan Foxley, B.A., at 6.30 P.M.

Thursday, December 14.

Chadwick Lectures: The last of three lectures on "Architecture in Relation to Health and Welfare," by Mr. Paul Waterhouse, M.A., F.R.I.B.A., at Surveyors' Institution, at 5.15 P.M.

L.C.C. Central School of Arts and Crafts, Southampton Row, W.C.: University Extension Lecture XI. on English Architecture: "Mediaeval English Homes," by Mr. Banister Fletcher, F.R.I.B.A., at 6 P.M.

## BRITISH-GROWN TIMBER.

THE war has opened our eyes to the value of home-grown timber, as of many other commodities for which we have got into an easy-going habit of dependence upon foreign supplies. Now we have learnt by bitter experience that this dependence is a millstone round our necks when any cause operates to render more difficult oversea transport to these islands. At present it is the operations of war that cause the difficulty. The shipping of our enemies is interned in its own and neutral ports and its usefulness to the world temporarily suspended. Another large portion of the transporting power of the world's shipping is absorbed in carrying men and munitions across all the seven seas. A by now appreciable proportion has been sunk by direct warlike action. Hence the possibilities of maritime conveyance have been greatly reduced, whilst the demand for its employment has considerably increased.

Nor can we hope that the advent of peace will immediately remove the overstrain completely. The peaceful activities of civilisation, now largely suspended in all the belligerent countries, have a very formidable leeway to make up, and the commercial demand for freightage after the war is likely to be intense for a considerable time to come. Hence we island-folk will be driven to dependence upon our home supplies, or at least it will be advisable that we should make the fullest use of their capabilities.

It is not any inferiority of quality that has led to neglect in utilisation of our home-grown timber. Oak, ash, and elm timber of native growth are superior in lasting properties to any that has been sent from abroad, native birch and beech are quite equal to foreign importations, whilst several of our coniferous woods, when matured and seasoned, have been found of the greatest value for general constructive purposes.

The main reason why home-grown timber is not more frequently used for building purposes is because it can rarely be got in a dry and seasoned condition and fit for immediate use, nor in the sizes, quantity or quality, and at the time required. On the other hand, foreign wood is sent to this country in a matured and thoroughly seasoned state, and can be procured in the different sizes and scantlings required for any class of constructive work, while there is no occasion for waiting on the part of the builder, as he can procure just what he wants at the shortest possible notice.

The supply of foreign timber is, in short, organised to meet and no doubt is in part responsible for a change in builders' methods and manner of business which the home-grown timber market has ignored. A hundred years ago every reputable builder, it is scarcely going too far to say, stored and seasoned a stock of timber, from

which he drew his supply for immediate necessities. Now he goes to the docks, or to a timber merchant's yard, and buys, from hand to mouth, what he requires at the moment. The foreign timber trade has been organised to facilitate this practice; the home-grown supply has not. Hence any user of home-grown timber has practically to buy it standing, probably even to cut it and carry it away, as well as to season it, so that if an architect desires to use British oak or elm, there is but a limited number of old-fashioned builders and a few merchants who can supply seasoned stuff ready for immediate use. The same practice of buying for immediate use instead of for stock applies also to other commodities used in building; but that is outside the scope of our present subject of consideration.

The supply of home-grown timber is also influenced by the conditions of production. Useable timber, unlike stone, brick, or metals, affords a return on capital outlay after the efflux of a long period of time. The man who invests in timber-growing must wait fifty or a hundred years before he sees his money back, and the probable condition of any market at that period of time in advance must be more or less speculative. Timber-planting for profit is thus something very like gambling. With afforestation, however, we do not propose to deal on the present occasion.

We propose rather to direct our attention to the wealth of British timber trees not only in the heavier constructional woods, but in what may be termed fancy or ornamental woods. The pine-trees principally grown in Britain are the Scotch pine or Scotch fir, as it is sometimes called, *Pinus silvestris*, the Weymouth pine, *P. Strobus*, the Corsican pine, *P. Laricio*, and the Austrian pine, *P. Austriaca*.

Of these the Scotch pine is the only one indigenous to Britain, its chief native habitat being the Northern Highlands. The quality of the wood varies greatly, the best, as found in the Northern Scottish forests, being close-grained, hard, and resinous, and equal in quality to that imported from Northern Europe. In England, as a whole, the wood is inferior to that produced in Scotland. The Weymouth pine is curiously erratic in the quality of timber produced in this country, but in English southern counties attains excellent quality. The Corsican pine produces good timber in this country, and succeeds on poor, gravelly soils. The Austrian pine furnishes timber which is usually rough, knotty, and hard to work, but stands alternation of exposure from wet to dry as well as any other home-grown timber.

Other notable softwoods are silver fir, spruce fir, silver or Sitka spruce, Douglas fir, and larch. Silver fir, *Abies pectinata*, attains an immense size in this country, but the large quantity of timber produced is of second-rate

quality. Spruce fir, otherwise known as Norway spruce, *Abies excelsa*, has been extensively cultivated in this country for upwards of 300 years, and the timber is, as a rule, quite equal to that from Scandinavia. Silver or Sitka spruce, *Picea Sitchensis*, grows to a large size in this country, and the timber, which is remarkably light for its bulk, strong and flexible, has been found of great value in the building of aeroplanes. It is close and fine grained, working well under the carpenter's tools. Douglas fir, *Pseudo-tsuga Douglasii*, produces a hard and durable timber which, when matured, is of a very rich colour and susceptible of a fine polish. Larch is the most valuable of the coniferous trees grown in this country, especially for all uses in which durability is essential. It is clean-grained, tough, strong, and light, but apt to shrink, with a tendency to warp.

The high quality of British oak is, of course, well known; but besides the generally found botanical forms of *Quercus sessiliflora* and *pedunculata*, it may be noted that, more rarely, there are found the varieties of brown oak, principally confined to Northants, Beds, and Herts; green oak, with a vivid green colour due to the action of the fungus, *Peziza aeruginosa*; Turkey or Levant oak, with a beautiful grain and good polish; evergreen oak, or ilex, the timber of which is hard and close-grained, richly coloured, with a satiny polish.

Chestnut, from its similarity to oak, though without the pronounced medullary rays, is useful as an ornamental wood, and when stained is largely substituted for walnut. Its use for cheap fencing has lately been much exploited. A wood little used or grown in this country is the acacia, whose timber is of a beautiful greenish-white colour, changing to dull buff or brown when quite dry, marked distinctly with brownish veins. The wood of the common almond tree, though not often procurable of large size, is, as far as colouring is concerned, one of the most beautiful and distinctive of any grown in this country.

Apple wood is used for cabinet purposes, and when stained makes a passable imitation of many foreign woods, such as rosewood and walnut. Pear-tree wood is similarly used, and is especially adaptable as imitation ebony. Arbutus, though small-growing, furnishes a wood which is hard, nicely veined, and susceptible of a smooth polish, and hence is highly valued for turnery and for cabinet-makers' work. Ash makes good furniture, and its great elasticity makes it useful for many purposes, as for aeroplane construction.

Box is indigenous to England, though now becoming scarce, and is particularly useful for mathematical instruments, scales, &c., and for wood-engraving. Buckthorn, though small, gives timber with a beautiful grain, hard, elastic, and smooth to work. Cedar, introduced into this country in the seventeenth century, is useful as an ornamental wood. Both the wild cherry and the bird cherry as well as the cultivated variety furnish wood useful in fancy cabinet-making and turnery. Holly is also in request for similar purposes, and particularly for imitation ebony, and in this ranks in company with laburnum.

Thus there are many British-grown timber trees, the use of which, if exploited more extensively, might be of value for ornamental woodwork, particularly in inlays, and others, such as sycamore, plane, and willow, which form a ground for this method of treatment.

Those who are interested in the subject of home-grown timber trees may be recommended to study a careful and compendious description\* by Mr. Angus D. Webster, who deals with the subject lucidly, not only from the economic standpoint but from the arboricultural side, and in whose book are given illustrations of longitudinal sections of woods which convey a good idea of their markings and figure.

\* "British-grown Timber and Timber Trees." Being a concise description of each species, together with notes as to their value for ornamental and economic planting, including an account of the soils suited to their cultivation, the uses to which the timber is applied, and current value of the wood, &c. By Angus D. Webster. With forty-one full-page plates. (London: William Rider & Son, Ltd. 5s. net.)

## NOTES AND COMMENTS.

NATURALLY enough, the National Gallery Bill has evoked a plethora of discussion, in which all sorts of variant views have been expressed. There is so much of purely personal predilection in the formation of an opinion as to the desirable character of a national collection of pictures that whilst some advocate, and we join with these, that such a collection should be as catholic and widely embracing as possible, others would go so far even as to suggest that instead of parting with our Turners, we should, as occasion permits, buy more and specialise in our own great master to render even more unapproachable than at present our unique position as possessors of his works.

Our view of a national collection is that it should be of the greatest possible value as an educational medium for the people of the nation generally, and hence should contain genuine examples of the art of the masters of painting of all schools. A private collector may specialise in any direction he pleases, and usually finds his greatest pleasure, and often his most profitable investment, in rendering his collection complete in one particular direction.

A very general ground of objection to the Bill lies in the distrust that some critics appear to have of any body of men who may happen to be the Trustees and Director of the National Gallery at any particular moment, whose mere fashion or caprice may dictate preference for some particular school or some individual master to-day, to the detriment of others who were in favour yesterday and may come into high esteem again to-morrow. We suggest that the definite acceptance as a binding tradition of the principle which we hold should govern the selection of subjects for a national collection would prevent the operation of mere whimsical preference. The Trustees should not debate whether it is desirable to sell Turners and buy Titians, to exchange Ettys for Botticellis, but whether their possession of works of all these masters is sufficiently comprehensive for a national collection.

Sir Edward Poynter is one of those who fear the operation of changing taste, but the strongest point that he makes is that, in his opinion, "there are not many pictures that are not wanted in the collection, and those which we feel we could spare would command no price, as, if they were not wanted in the Gallery, it would be because they were considered of no value." In view of the position Sir Edward has held as Director of the National Gallery, he must be presumed to have a correct knowledge of the relative value of its contents, and if his successors in office held the same opinion the Act, if passed, would be abortive.

At a recent meeting of the Chester Consistory Court, a letter was read from the Chancellor (Sir Philip Baker Wilbraham, Bart.), in which he replied to a letter from the rector of Malpas, which appeared in the "Diocesan Magazine," with reference to the necessity of obtaining faculties for memorials in churches.

"Mr. Armitstead," the Chancellor writes, "raises an important question where he points to the special conditions arising out of the war. There are, indeed, many sons of rich and poor alike who will never find a place in our churchyards at home. It is right that their memory should be honoured, and it would be wrong that any question of fees should be allowed to stand in the way. In several small cases recently the statutory fee of £2 2s. for a minor faculty has been reduced to £1 1s., and I propose to make this a rule in future for all cases of war memorials, where the total cost of the work proposed does not exceed £20. For very small cases special arrangements can be made; and if in any parish several small memorials are required, there is no objection to combining them (within reasonable limits) in a single application for a faculty."

"But I earnestly hope that the dead who have died for their country will not, as a rule, be honoured by numbers of small independent tablets, differing in size, design and treatment, scattered over the church. Some

individual monuments no doubt there will be. But for the most part, would it not be better, and more in harmony with the spirit of corporate sacrifice which these men have shown, that each parish should take in hand some general scheme of war memorial, in which individual inscriptions might find a place? The scheme might be of almost any kind. In some cases it might take the shape of a long-desired improvement to the church; in others, perhaps, the money could better be devoted to some outside work, with a mural tablet in the church recording it. The foundation of mission churches in Canada, for instance, or India, had been suggested, and it would be difficult to think of any nobler or more Christian monument to those who have fallen. Memorials of this kind cannot, of course, be completed yet; but it is not too soon to begin to think about them now—to hold a meeting, or consult an architect, and prepare plans for a common scheme, or even, perhaps, in certain cases, to begin the work by instalments."

An instructive and interesting lecture entitled "The Esthetic Aspect of Animal Life," by Professor J. Arthur Thomson, has been delivered under the auspices of the Zoological Society of Ireland.

The lecturer at the outset mentioned that he approached his subject from the point of view of the student of science. The science of the beautiful is, he stated, still very young. When one began to discuss the question of the beautiful one came up against the question of taste. It should, however, be noted that the science of beauty was well begun, and that there was a growing body of data in reference to what children and unsophisticated people regard as the most pleasing forms, colours, and movements. For a long period culminating in mid-Victorian days there was a general idea that beauty was a rare thing, somewhat exotic, in which one looked for beauty in the orchid rather than the dandelion, but since that vicious period came to an end people learned, like Peter, that there was nothing common or unclean on God's earth, and that the beautiful was at our very doors, that beauty crowded us all our life. He would ask those questions in regard to the beautiful amongst animals. The first question to be discussed was—"What is implied in our æsthetic emotion when we contemplate beautiful animals?" In the first place, he said, there is a purely sensory factor, for what we see sets up pleasant rhythmic processes in our eyes, and messages pass to our brain, and the pleasedness is echoed throughout the body, in the pulse, for instance, and in the beating of the heart, as Wordsworth well knew. Supplementing this there is a perceptual factor, a subtler appreciation, which takes account of the significance of what is being seen, which compares and values and allows memories and associations to rise. As Sir John Burdon Sanderson said, much of our enjoyment of beauty is mingled inextricably with an appreciation of adaptiveness. Thirdly, in some cases there is imaginative sympathy, when we actively respond to what we enjoy looking at, projecting ourselves on it, reading ourselves or something else into it, in an æsthetic illusion, which is not unrelated to self-deception play. A second question concerns the qualities in animals that impress us as beautiful; and the answer is—form, colour, and movement, singly or together. We like best those animals that have flowing lines, shapes that sing, features which repeat themselves rhythmically, which conspire to one effect, which compose and are readily summed up. The combinations of colours in animals are often daring, but they are always harmonious—the reason for this being that they are the vital expressions of unified visible individualities, which have stood the test of time. Moreover, in the course of hundreds of thousands of years our eyes have become attuned to the natural, and just as a discord may break a precious glass vessel by setting up contradictory vibrations, so there are colour-schemes (like some tartans) which almost literally jar, and muddy colours that are like noises. In the case of movements we enjoy especially those that are eurhythmic, like the

flight of birds, which set up a pleasant internal mimicry in our bodies. There is sympathetic resonance. A third question is—What does beauty mean for the animals themselves? Some, like bower-birds, show the rudiments of æsthetic delight, as Dr. Thomas Reid recognised. Beauty often seems to mean much in animal courtship. But it is, perhaps, more important to recognise that beautiful structures in animals often mean stable architecture, that pleasing lines often express strenuous endeavour, and that others, like the bars on feathers and shells, are the registrations of rhythmic growth. Every wild animal living an independent life is an artistic unity, in the direction at least of beauty and usually attaining it, and is pleasing to the eye, at any rate when we see it in its natural setting. The animals that do not please us are unfinished animals, like some embryos; those that are distorted or crippled by parasites; those which are themselves parasites; and those whose proportions have been spoilt by one-sided domestication, like prize pigs.

The Committee of the Privy Council on Scientific and Industrial Research, with whose first annual report we dealt at length, has now, with commendable promptness—for our late Government—been constituted as a separate Department of Scientific and Industrial Research for Great Britain and Ireland, under the Lord President of the Council, with the President of the Board of Education as Vice-President. The official statement constituting the Department may be thus summarised:—

1. A Royal Charter has been granted to the official members of the Committee of the Privy Council of Scientific and Industrial Research, which was established last year with Sir William M'Cormick as administrative chairman, to enable it to carry out its extended mission.

2. It will obtain financial support on what may be described as a co-operative basis:

(a) The Treasury has agreed to set aside a large sum, which will form the nucleus of its funds. The amount is four or five times as much as has ever before been allocated for such work.

(b) In order to encourage firms interested in various trades to make generous contributions, the Treasury has agreed that any money given for research, on specified terms, shall be regarded as working expenses, and will thus be free from income-tax and excess profits tax. In other words, of any sum which a prosperous industry may set aside, about 77 per cent. will consist of money which would otherwise be paid over to the Exchequer, and only the balance will come out of the pockets of the contributors—private firms or limited liability companies engaged in trade.

3. With a view to promoting this co-operative movement, Industrial Associations will be formed in connection with various trades for the promotion of research, and they will work under the supervision of the new central authority.

4. The research of individual workers will be encouraged by grants.

5. The new Department of Scientific and Industrial Research will be empowered under its charter to administer any sums which may be left by will for this great national movement.

Mr. H. Frank Heath, C.B., has been appointed permanent secretary of the new Department, to whom all correspondence should be addressed until December 31 next, at the offices of the Board of Education, Whitehall. On and after January 1, 1917, all correspondence should be addressed to The Secretary, Department of Scientific and Industrial Research, Great George Street, Westminster, S.W.

We noted, some time ago, the proposal of the Town Clerk of Glasgow (Sir John Lindsay) that a Commission should be formed to consider the question of improving the town planning of the city and the housing question gener-



ally. The Corporation has now approved the suggestion, but add to the Town Clerk's proposal that the commission should consist of two architects, two engineers, the Master of Works, the Medical Officer of Health, and the Chief Sanitary Inspector, further members including the Dean of Guild, the Deacon Convener, three members of the Health Committee, and representatives of the Executive Committee on Housing, the City Improvements Committee, and the Statute Labour Committee.

So large a committee means much talk and slow progress and possibly acrimonious discussion, particularly in view of the proceedings which occurred at the Scottish National Housing Congress last week, when Sir John Lindsay, who presided, contended that there was more sentiment than common sense in the suggestion that the housing problem in cities could be solved by the erection of cottages, and voiced the opinion that the Scottish tenement was to be preferred to the English self-contained house, which was often sub-let by the tenant to other people. This view was contested by a number of the speakers. A resolution was adopted declaring the desirability of stimulating the supply of self-contained dwellings with gardens, a proposal in favour of checking the building of tenements being by consent withdrawn.

The Dublin Corporation municipal workshops appear to be a concentrated quintessence of the extravagant inefficiency that commonly marks such institutions. At a special meeting of the Corporation the Lord Mayor said that within the past two months it had come to his knowledge that the Stanley Street workshops were not going on as well as they would all like them to go. On one day a few weeks ago there were twenty men idle. These men were all paid on an average £2 a week. And day after day from that time till now there were a certain number of men idle every day, and they were being paid for doing nothing. He did not think he would be doing his duty if he did not bring this matter before the Council and try to do something to remedy that appalling state of affairs, involving a considerable money loss. He was told that on one occasion the roof of a house or shed required repairs, and there was not a carpenter in the place fit to go on the roof, the result being that three men had to be brought in to do the job. He thought that was a hopeless state of affairs in any municipal authority. There was at the workshops a permanent staff of something like 93 men, and he was told that there was not work for half of them.

A matter of considerable importance is discussed in the "Yorkshire Post" as follows:—One important factor in the problem of heating buildings is only too often neglected. To a very material degree economy of heating depends upon the heat-insulating properties of the walls of the building. However efficient be the heating system, the consumption of fuel will be extravagant unless the outer walls, windows, doors, floor, and roof are such as will prevent the too easy escape of the heat generated. In very many cases houses are built without any consideration of this most important point. Yet the saving in fuel to be effected by making buildings reasonably heat-proof is enormously greater than the cost. Mr. C. T. A. Hanssen has recently stated, on the strength of careful experiments, that if proper steps are taken to prevent excessive heat losses by protecting the walls, floors, ceilings, and roof with some cheap and efficient non-conductor, and by using double windows, the total cost for heating can be reduced to one-third of what it would otherwise be. This refers apparently to a detached building; in the case of houses in rows the possibility of economy would not be so great. The cost of heating an average middle-class house through the winter months varies a good deal according to the locality, the heating system used, and the degree of comfort demanded; but if £18 be taken as a common figure, then the saving to be effected by proper heat-conservation works out at some-

thing like £12 per year, and, if the life of the house be taken at 100 years, the possible saving over the whole period amounts to the surprising sum of £1,200. It appears, therefore, that every shilling spent on making a house reasonably heatproof may easily save a pound in fuel before the building has rendered its full tale of service. As to the best, cheapest, and most durable method of providing against the too rapid escape of heat very little information is obtainable, for the simple reason that the matter has not been sufficiently investigated. As regards outside walls, Mr. Hanssen points out that there is no occasion to go in for extraordinarily thick brickwork, as insulating materials of much less bulk can be used to equally good purpose. One-inch thickness of slag-wool, for example, will retain as much heat as an extra 12-in. thickness of brickwork, and slag-wool is proof against moisture, vermin, fire, and sound, and is at the same time cheap. Roofs and floors play a no less important part in heat wastage, and as much attention should be given to making them warm as to making them dry. The use of double windows, though practically unknown in this country, is part of the seasonal routine in colder climates, the extra sash being fixed in place at the beginning of winter and removed in the spring. In our own more temperate climate the fuel economy would not be so great, but it is probable that it would much more than repay the expense and trouble involved. It is computed that £54,000,000 a year is spent in this country on heating private houses by means of open fires. The economy to be effected by efficient heat-generating systems and by the efficient conservation of heat is, therefore, a matter of considerable importance.

#### THE LATE MR. EDWARD CRATNEY, F.R.I.B.A., M.S.A.

We regret to announce the death of Mr. Edward Cratney, a well-known Newcastle architect, which occurred at his residence at Willington-on-Tyne, on Friday last.

Mr. Cratney, although only thirty-four years of age, had made rapid strides in his profession, and his death is all the more regretted as he had many important building schemes on hand, which were to be proceeded with after the war. He served his apprenticeship with Mr. J. Fleming Davidson, of Willington Quay, after which he commenced business on his own behalf. He was immediately successful in several competitions, and many of his designs were most favourably commented upon for the originality of treatment which they displayed. His work included free libraries at Sunderland and Annfield Plain, country mansions, churches, factories, and public buildings. About ten years ago he carried off the gold medals awarded for the best designs of model dwellings on the Walker Estate belonging to the Newcastle Corporation, and a thriving village is now to be seen laid out on the lines he suggested. Since then Mr. Cratney had made a close study of the problem of erecting model cottages and workmen's dwellings, and on this question his advice was frequently sought by private promoters of schemes and by municipal authorities. Recently he was appointed architect and adviser to the Newcastle Corporation and the Wallsend Corporation in regard to big housing schemes, the former being estimated to cost well over £100,000. The last work he was engaged upon was the laying out of a new cemetery and the erection of chapels and lodges, &c., for the Whitley and Monkseaton U.D.C. (Photographs of this virile work appeared in our issue of September 15, and supplementary views of the highly interesting chapel will be published later.)

Mr. Cratney was a frequent contributor to the illustrations pages of "The Architect," and, indeed, the gradual but sure development of his skill can be well traced in this Journal; and many of his designs have been published also in America.

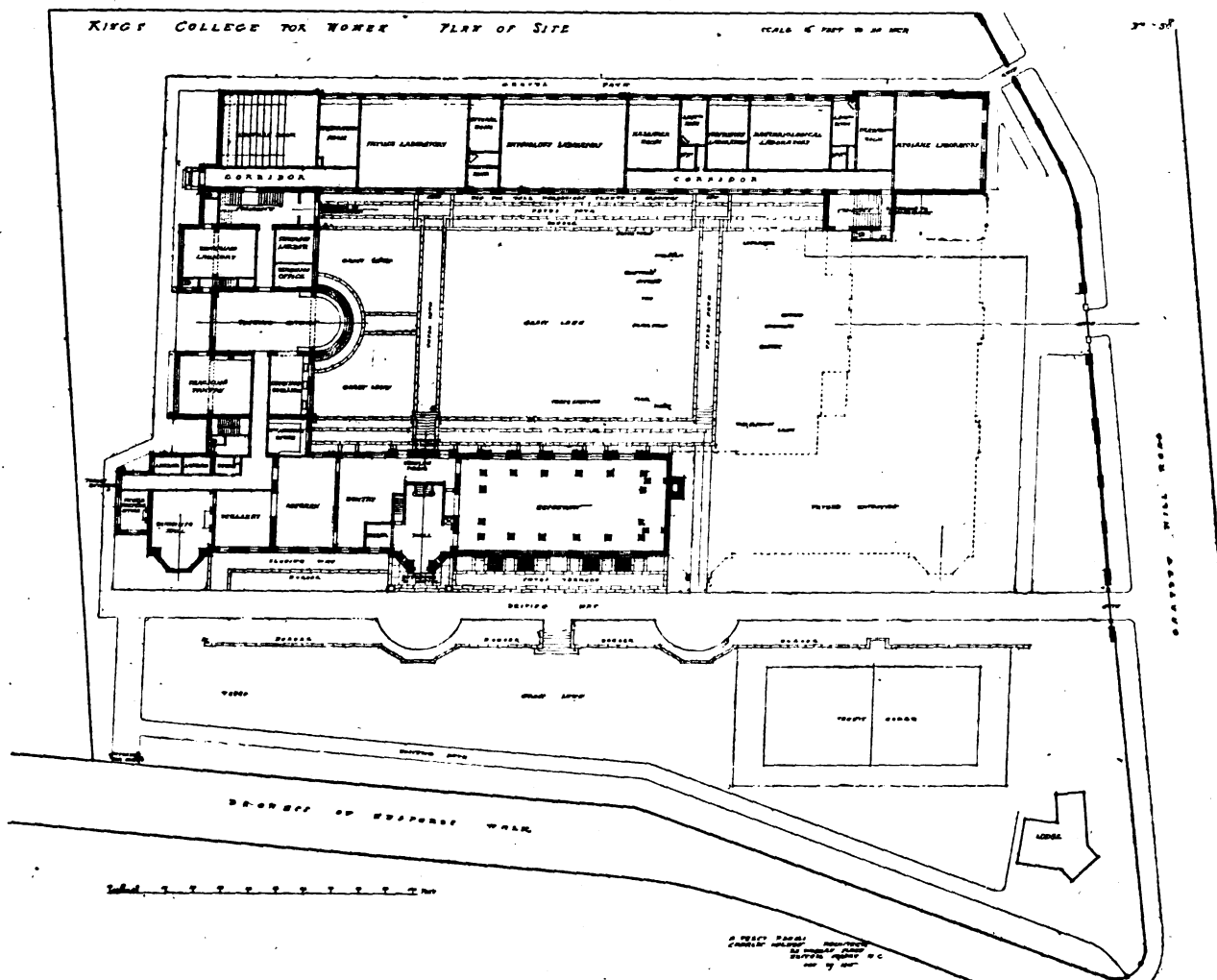
For some time he had not enjoyed good health, and died after an operation. The interment took place at Wallsend on Tuesday.

## ILLUSTRATIONS.

## KING'S COLLEGE FOR WOMEN, CAMPDEN HILL.

OUR three plates are concerned this week with the large building which has recently been erected on Campden Hill, Kensington, in connection with King's College for Women (University of London). As will be noticed from the accompanying plan, the scheme is not yet complete, inasmuch as the fourth side of the quadrangle exists

only on paper. The view of the south front shows the hostel portion and the first two bays of the single-storey refectory (75 feet by 35 feet). The latter is particularly interesting, and its interior monopolises one of the two remaining plates. A study of the plan should be made side by side with that of the photograph showing the courtyard. Messrs. G. E. Wallis & Sons, Ltd., of London and Maidstone, were the general contractors. The architects were Messrs. H. Percy Adams and Charles Holden.



## THE CONCRETE INSTITUTE.

Continuation of Presidential Address by Mr. F. E. Wentworth-Sheilds, M.I.C.E., from last week.

PASSING to the question of secondary education, every member of our society will be in cordial sympathy with the movement to emphasise the importance of science in Public School and University education, and to abolish the absurd proportion of time given to the study of Latin and Greek. We do not for a moment, of course, wish to do away with the cultivation of humane letters, but that our two senior Universities should practically compel their students to spend an enormous part of their school hours in learning subjects which the majority of them cannot appreciate, and from which eventually they derive little or no benefit is a national scandal. It is curious to note that at the important Conference which was held on this subject last May, under the Presidency of Lord Rayleigh, many masters and professors of the older Universities bewailed the neglect of science in their schools. But the influence of the dead hand seems paramount at Oxford and Cambridge, and probably it will be long before their regulations and scholarships will be arranged in such a way as to induce a larger number of students to take up pure and

applied science instead of classics. As a nation we are suffering severely from this neglect of science in the past. Some of our ablest men, who ought to be helping the country as engineers and leaders of commerce, are wasting their energies as lawyers and Members of Parliament. Worse than that, even in this capacity they are quite unable to appreciate the dire necessity for the better cultivation of science, because they know nothing of it themselves. The Report of the Research Council points out that one of the great difficulties of carrying out research work is the scarcity of qualified observers. "The annual number of students," it tells us, "graduating with first and second-class honours in science and technology, including mathematics, in the Universities of England and Wales before the war was only about 530, and of these but a small proportion will have received serious training in research." How is it possible that our Government will take active steps to remedy this state of things so long as their Members and employees are recruited from a class which knows little or nothing of science? Fortunately, the newer Universities are more alive to the importance of science and less hampered by the tradition which has made it the Cinderella of school subjects. Even here, however, there is room for further usefulness. If science is to be really and seriously cultivated in this country, it should

be taught at our Universities to every member of our leading professions, to our Civil servants, and also to those who are to take a leading part in commerce and industry of all kinds. But the influence of our Universities should not cease at this point; they should be in constant touch with the life and work of the men they have trained. It is perhaps unfortunate that the professors of our British Universities are in many cases schoolmasters and nothing more. In other countries it is not considered desirable that students should be taught by a man who does nothing but give lectures. The professor is encouraged to keep in touch with the world of commerce in various ways. He is permitted, or in some cases obliged, to act as consultant on practical work. At one University in America, commercial firms are invited to bring special research problems to be investigated by the College staff, who are bound to secrecy, and, on the other hand, participate in any success which the investigation may produce. Such intimacy between school and business is sure to be of the greatest benefit to both.

*Economic Independence.*—The war has strongly impressed another idea upon us, namely, that it is consistent with true economy that we should make use of our own rational and imperial resources, rather than be entirely dependent upon other nations for the materials and manufactures which we use day by day. "When war broke out," says the Report of the Research Council, "our supply of dyes and glass was practically cut off. We were dependent upon Germany for magnetos, for countless drugs and pharmaceutical preparations, even for the tungsten used by our great steel-makers, and for the zinc smelted from the ores which our Empire produced." I am glad to add that vigorous measures were taken, with liberal assistance from the Government, to remedy this state of things. But that such a thing could happen has given food for thought. Our easy-going theory of the past suggested that we should buy in whatever happened to be the cheapest market and pay for the goods with something that we could produce more cheaply still. The drawbacks of this practice are now fairly obvious, and, moreover, we are beginning to discover that we can produce many things quite as cheaply as other nations, if we will only take the same trouble.

A very striking instance of this fact is constantly being brought to the notice of the members of this Institute.

In 1913 the value of timber and wood goods imported from our Colonies and from foreign countries (mostly from the latter) was over £37,000,000. A very large proportion of this timber was used in building construction of all kinds, and yet we know that a great deal of it could be replaced by steel and concrete manufactured at home, and that the resulting structures would be cheaper and more permanent. The price of timber, which is now three times as great as it was in 1913, is forcing this subject upon our attention, and it is safe to say that when the war is over and prices are down to more normal figures, concrete, plain and reinforced, will largely displace its foreign rival, and that every architect, engineer, and builder will be expected to be well acquainted with its use.

In this connection it may be noticed that an important item in the cost of reinforced concrete work is the provision of the formwork, which is usually made of timber. Indeed, this type of construction has been adversely criticised on the ground that it is necessary to erect a timber building before the more permanent structure can be built up, and that the timber so used is of little or no value afterwards, and is practically wasted. There is no doubt that designers could avoid a great deal of this waste by planning their buildings in such a way that the formwork can be used again and again. We have heard a good deal lately about the standard ship, and it has been suggested that shipbuilding could be enormously cheapened by constructing vessels to one or two standard designs. Why should not we have

in the same way a standard factory or warehouse in which the spans and scantlings of the beams should conform to a pattern? Such a design would admit of light steel formwork being economically used, and would mean a saving of labour and material, both to the designer and builder. It only requires closer co-operation between all connected with the industry to bring it about, and I think the Concrete Institute would do a good work if it were to lay down such a standard.

*Increase of Output.*—One of the great difficulties which we have had to encounter in our endeavour to obtain economical work has been the restriction placed by the workmen themselves through their trade unions on the amount of their output. To Mr. Lloyd George belongs the credit of having induced them to some extent to forgo these restrictions, although they are by no means abolished. Unfortunately, the Government has promised that after the war is over all such restrictions shall be re-established. In the name of common sense let us hope they will not. The attitude of working men in this matter has been foolish and suicidal in the extreme. The result of the policy is clearly seen by comparing our census of production of 1907 with the American census of 1909. In almost every trade the American workman produces two or three times as much as the Englishman. No one would suggest that the American is cleverer or stronger than our own artisan. It is simply that the point of view of the American workman is or at all events has been, entirely different to that of the British. Our men seem to labour under the mistaken notion that in every workshop or group of shops there is only a limited amount to do, and that if any one man voluntarily increases his day's work, he is depriving some other man of employment. This, of course, is an entire fallacy. Indeed, it may be said that the opposite is the case, and that the industry which can produce the largest output at a given expenditure will be the one which will be able to employ the greatest number of men. On the other hand, many intelligent working men will reply that they are quite aware of this, but that if they use their best efforts to increase production, the employers, by refusing to raise wages and by cutting down piece-work prices, prevent the workman from getting his fair share of the added wealth. Unfortunately, there is some truth in this criticism. The question was dealt with by Mr. Gerald Stoney, F.R.S., in his address as President of the Engineering Section of the British Association at its meeting last summer. He pointed out that at present the most highly skilled men are paid by time, and thus earn considerably less than others of more mediocre attainments who earn by the piece. This is an arrangement which seems to be neither fair to the men themselves nor advantageous to the works as a whole. Again, coming to the question of piece-work prices, Mr. Stoney points out that it has been customary to cut down the price when a workman's earnings prove to be more than 50 per cent. in excess of what he would make if paid by time. This, too, is unfair and unwise, and the practice is to some extent responsible for the wilful limitation of output. He suggests that piece-work prices should be fixed by a special department, and that they should not be cut down except in extraordinary circumstances, and certainly not because the man happens to be earning good money. There is no doubt that too much stress has been laid in the past by employers on the desirability of keeping wages low, and we are beginning to realise that reasonably high wages are a positive advantage to a manufacturing concern, provided that they are accompanied by a large output.

*Better Use of Machinery.*—Another economy which needs to be developed in this country is the more extended use of machinery and of better machinery. In many of our workshops the machines are old-fashioned and insufficient, but their owners have hesitated to abolish them for various reasons. Conservatism no doubt has been partly responsible for this lack of enterprize, and perhaps a more important cause has been the difficulty of



obtaining a proper output of machinery owing to the lamentable restrictions imposed by the various trade unions, who seem to be possessed with the groundless fear that the use of machinery will lead to unemployment. Be this as it may, our census of production of 1907 compared with that of America in 1909 shows how much more machinery is used in the newer country, their horse power per man employed being in many cases double our own. It is notorious, too, that the Americans are more ready to replace old machinery by new than we are. The war has done much to change this, and in many workshops new plant has been laid down in order to meet the imperative demand for increased output. The resulting economy in production has been brought home to manufacturers, and it is not likely that the lesson will be forgotten. Even in the building industries, in which we are more directly interested, the introduction of new machines has been very noticeable. On many works such appliances as concrete-mixers, blockmakers, woodworking machinery, and all kinds of elaborate cranes and conveyers are used, where formerly the work would have been done by hand. The advantages both in increased output and in the quality of the work done have been very great, and further invention will undoubtedly extend these improvements.

*Scientific Management.*—Among the many ways in which science can help industry is the methodical arrangement and teaching of hand labour. For generations the apprentice has been taught his trade by being put to work along with the older hands, so that he may learn by observation, with perhaps some imperfect explanations. The limitations of this system have been shown in a most interesting way by Mr. Winslow Taylor in his book on "Scientific Management." He shows that very careful measurements and records are needed to find out how a man can do any piece of handwork to the best advantage—that is to say, in the shortest time and with the least fatigue. For instance, he describes how by scientific study of the movements involved he was able to train a man to load up pig-iron into railway trucks in such a way that he could easily increase his output nearly fourfold. He describes how the Bethlehem Steel Company used to employ a gang of men, under an excellent foreman, who loaded up  $12\frac{1}{2}$  tons per man per day. The movements of the men were studied, and one by one they were taught how to do it more advantageously. The pupil was made to rest at stated intervals, so much so, that less than half of the ten-hour day was occupied in actually carrying his load. The result was that each man was taught to load up 47 tons per day instead of the  $12\frac{1}{2}$  tons, and this without any sign of fatigue. The men's wages were raised 60 per cent., notwithstanding which the unit cost of the operation was very considerably reduced.

Mr. Taylor also quotes the investigations of Mr. Frank B. Gilbreth, of the American Society of Mechanical Engineers, who studied and improved the art of brick-laying. He describes how he arranged the mortar-box and the pile of bricks in such a way that the bricklayer no longer had to step backwards and forwards or to stoop each time a brick was laid. The bricks were sorted and placed with their best edge up by a labourer. The mortar was tempered in such a way that the brick had no longer to be tapped, but could be pressed down to its proper position. Thus the movements made by the bricklayer were reduced from 18 to 5 per brick. With these improvements a well-trained workman could lay 350 bricks per hour, whereas the average speed under the old methods was 120 bricks per hour.

(To be concluded.)

MAJOR HERBERT PHILLIPS FLETCHER, attached R.F.C., F.R.I.B.A., F.S.I., A.M.I.C.E., of 29 New Bridge Street, E.C., and Park House, Marden, Kent, who died August 3, aged forty-four, from an accident on duty, left estate of the gross value of £17,077.

### BRITISH SCHOOL AT ATHENS.

THE annual meeting of subscribers to the British School at Athens was held on November 28; Mr. George A. Macmillan, chairman of the Managing Committee, presiding.

The Managing Committee state in their Report for the Session, 1915-1916, that during the present eventful years the utmost those entrusted with the management of the School can hope to do is to keep the various departments in working order, ready for renewed activities in the better future, and meantime to render every national service that lies in their power. Everything possible has been done in both directions, but friends must wait for information under the second heading until after the war.

*Roll of Honour.*—Since the issue of the last Report two names have been added to the School's Roll of Honour. The Committee grieve to record the death of Captain Guy Dickens, King's Royal Rifles, on July 17, from wounds received in action three days before. Captain Dickens was a student of the School for five years (1904-1909). His main interest was in ancient sculpture, and the first volume of the Catalogue of the Acropolis Museum was his work. His clear and concise treatment of the early sculptures is at once an admirable summary and corrective of the needlessly elaborate literature that has overgrown these works. His restoration of the great group by Damophon showed a rare conjunction of imagination in forming an idea and patience in working it out. It is to be regretted that he did not live to carry out his work on Hellenistic sculpture to which he was attracted by the mass of material, original or derived, awaiting the author of a comprehensive work devoted to this subject. Friends of the School will be glad to learn that some of his materials will be available for publication in the "Annual" and elsewhere. It might be said of all Dickens' work, save indeed of that which he laid aside for his country's service, that whatever he took up, he saw through to the end; he brought to it a good eye, a full memory, a ready pen, and a real love of the beautiful. The Greeks admired him for his handsome presence and easy tongue, while in the Common Room at the School he was honoured for his gifts and loved for his kind and merry heart.

The School has further to mourn the death on the field of honour of Second-Lieutenant Roger Meyrick Heath, Somersetshire Light Infantry, who enlisted in the Public Schools' Battalion at the beginning of the war, and after having been gazetted to the Somersetshire Light Infantry, crossed to France on September 13, 1916, and was killed instantaneously by a shell two days later. At Oxford he had been awarded the University Diploma in Archæology with distinction in Greek Epigraphy. He won the Newdigate and had published a volume of verses. In Heath the School loses a good comrade, a scholar of rare promise, and a true "inheritor of unfulfilled renown."

*The Director.*—During the whole of the Session the Director's services have been lent, with the approval of the Committee, to H.B.M. Legation, where he is employed mainly as director of Relief for the British Refugees from Turkey. He spent June, 1916, at Corinth, at the invitation of the American School, helping Mr. Blegen to continue the excavation of the Mycenæan site discovered last year. Further interesting discoveries were made this year which will throw light on the civilisation of the Peloponnesus in pre-historic times. Remarkable is the discovery of a new pre-historic painted pottery allied to Minyan ware but with fine freehand florid designs recalling those of Phylakopi. In August, Mr. Wace made another short visit of six days to Corinth to see the excavation of another pre-historic site, where ware of the second Thessalian period has been found underlying Urfinis ware. The Committee wish to record their gratification that the Director of the British School was invited to give his

help in these important excavations carried on by his American colleagues.

During the winter as time allowed, the Director continued his study of the pottery from Mycenæ and superintended the execution of archæological drawings made by M. E. Gilliéron, fils. The Director also conducted the examination, at the instance of the Ministry of National Economy, of candidates for a diploma in English to enable them to become teachers of English in the public commercial schools. In a similar capacity he had the pleasure of assisting his French colleague, M. Fougères, in conducting examinations for the French Ministry of Public Instruction. He was also consulted by H.R.H. Princess Alice with reference to an exhibition of Greek embroideries and other arts which she proposed to hold.

*The Library.*—Some new rules for the management of the Library have been put in force, and, so far as can be seen at present, work well. The Library, in view of the abnormal conditions, has been closed to the general public, but students have been able to obtain admission. Mr. Dawkins and Mr. Hasluck have worked there during the Session as well as members of the French and American Schools and several Greek scholars. In addition some resident subscribers and various members of the British colony have made use of it. The additions to the Library have been few. Several important works have been received from the Trustees of the British Museum—but these, with other books given to the School, have not yet been despatched to Athens.

*Suggested Purchase of Additional Land.*—During the Session the Monastery of the Holy Angels near the School obtained leave from the Ministry of Ecclesiastics to offer for sale the plot of land directly opposite the Schools on the slope of Lycabettus, on the other side of Speusippus Street. A sale by auction of some lots actually took place, but through the vigorous representations of the Directors of the two Schools, aided by the British and American Ministers, this sale was annulled and the two schools now have a right of pre-emption, subject to certain limitations. In this connection the School is much indebted to Sir F. Elliott, who in this has, as always, shown himself a warm friend of the School, to Mr. Hill, to whom the bulk of the negotiations have so far fallen, and to Mr. Ioannides of the Ecclesiastical Commission for friendly advice and help.

*Acknowledgments.*—The School is deeply grateful to Mr. Kuruniotis, Chief of the Archæological Section of the Ministry of Education, for his kindness to the School, and to Dr. Stais, Director of the National Museum, for the courteous help he invariably gives to those who wish to study the treasures in his charge. To Miss Hutton the School owes this year a double debt of gratitude for undertaking, in Mr. Penoyre's absence, much of the secretarial work of the School, in addition to the valued help she has so long given by editing the "Annual."

*Publications.*—Considerable progress has been made with the arrangement of the material for the Palaikastro publication. The plans have been completed by Mr. W. S. George, Mr. H. H. Jewell, and Mr. Heaton Comyn, and some of the illustrations have been prepared, but for the present the work is at a standstill owing to the absence abroad of Professor Bosanquet and Mr. R. M. Dawkins.

The appearance of Vol. xxi. of the "Annual" has been delayed by difficulties inseparable from the present conditions, but the Editors hope to distribute it early in the New Year. It contains papers by Dr. Leaf, the late Guy Dickins, the Director, Mr. Hasluck and others.

Mr. R. M. Dawkins' important study of the dialect of Cappadocia, "Modern Greek in Asia Minor," appeared in June, 1916, and has aroused great interest, not only among philologists, but among folk-lorists, for the work includes a large collection of folk-tales. A chapter on the subject-matter of these tales is contributed

by another ex-student of the School, Professor W. R. Halliday.

*Finance.*—The Revenue Account for the year shows a credit balance of £561 18s. 4d., as compared with a similar balance of £426 17s. 2d. for the preceding year.

The total amount of the Annual Subscriptions is only £588 16s. 0d., a decrease of £86 0s. 0d. as compared with last year, and of £202 0s. 0d. as compared with two years ago.

Expenditure has remained low owing to the causes mentioned in last year's Report and the saving of a salary to an Assistant Director.

The reasons for the serious decrease in subscriptions are too obvious for comment, but it is earnestly hoped that bottom has now been touched, and that there will be no further falling-off to be reported in next year's accounts.

### TOWN PLANNING OF GREATER LONDON.- III.

At University College, Professor S. D. Adshead, M.A., F.R.I.B.A., delivered the third of six public lectures on "The Town Planning of London after the War."

In his second lecture Professor Adshead reviewed the history and development of main roads during a century subsequent to the introduction of railways, and showed how a century of science and administration had converted country lanes into important highways. Then, for fifty years they were practically disused. Occasionally a furniture van would rumble along their once busy track, or perhaps a gipsy van, or farmer's trap. It was the strenuous cyclist who again put life into the road. It was the cyclist who investigated the meanderings of the country lanes. But the cyclist was not a man of influence, and his excursions not matters of national importance, and this of itself had very little effect on the deliberations of those responsible for the upkeep and improvement of main roads. The régime of the cyclist was of importance, however, as anticipating the automobile. The introduction and development of self-propelled vehicles, little more than a decade ago, was so important an event that we are justified in regarding it as a momentous incident in our national existence. It is creating, and will continue to create, a complete change in the organisation of popular transport. It is bringing about great changes in the distribution of factories. It is upsetting long-established land values. And its influence penetrates to the very placing and planning of the home.

The extraordinary rapidity with which the motor industry has been developed, both as regards pleasure vehicles, tradesmen's vans and heavy wagons, demonstrates irrefutably that after the war (which has naturally produced a temporary check) we shall have such resuscitation and revival of road traffic as has never been seen before.

Now, we must not forget, in considering the construction of a new road, the requirements of which are in the first place to meet the needs of motor traction, that we are dealing with quite a different problem from that presented to Telford and Macadam, whose interest centred mainly on the movements of the four-horse stage coach. If asked to enumerate the cardinal requirements of the main road of to-day, Professor Adshead said he would mention:—

- (1) An even surface with good grip.
- (2) A wide angle of visibility.
- (3) Big curves and no corners.

With regard to the Conference proposals for new arterial roads leading out of London, he pointed out that the conclusions arrived at are on the whole excellent; but, at the same time, through untoward circumstances, there are cases where the results are to his mind by no means the best. It must be borne in mind that the local authorities through whose areas the roads pass have had a good say in the matter, and there is no doubt that, in order to meet their wishes and obtain their consent to a scheme, modifications which have had to be made have

not in every case been an improvement on the original line; however, this is exceptional and not general.

And moreover in regard to road construction and town improvements generally, as in other walks of life, there is the "broad" and "narrow" way. There are several cases where a fine scheme has been overlooked or abandoned for lack of, shall one say faith? Some of the proposals, as, for instance, the proposed circumferential route from Clapham to Catford, described as the "South Circular Road," are so tortuous and irregular that under no circumstances could they ever become great popular thoroughfares like the Haussmann roads in Paris. However, in this case merely to connect up an existing series of roads was all that was ever intended. At the same time, if a main road is worthy the name, it must have distinction, it must be a wide, continuous track, showing no hesitation as regards its career; otherwise it is not a road, it is merely a route. Should it incline to the left or right, it should do so deliberately, and never appear to be slinking into a back street. Should it penetrate an important junction, it should do so with some formality, and not elbow its way through a maze of irregularities, only to be disposed of by following a tramtrack. And it should have characteristic and never-to-be-forgotten features at intervals in its course.

It is here that the services of the architect are required. It is the architect who alone can deal with road junctions and give them their proper setting. A main road should be so direct and deliberate that it is quite impossible consciously to slip away from it. And it is of importance to give consideration to the mental effect produced on the driver of a vehicle, by disturbing elements in the planning of its courses. These are such features as turnings which create feelings of hesitancy, continual narrowings and widenings, and where two ways meet having to take what in plan and appearance is the less important of the two. So to plan a main road as to preserve the equanimity of a driver is, if anything, even more important than that it should be absolutely the shortest route.

### ART IN LONDON.

#### MR. JOSEPH PENNELL AT MUNITION WORKS.

WHEN we regard this collection of lithographs at the Guildhall Art Gallery, it is easier to recognise the verity of the assertion that modern war is won in the workshop rather than in the field. At least there is an element of truth in it, which connotes nothing derogatory to the magnificent qualities of the men in khaki who are so nobly doing their devoir in the fields of France, Belgium, Greece, and Africa.

It is a wise decision to exhibit these sketches in London and the provinces, and thus help to bring home to the understanding of the public the all-importance of the work of the stay-at-homes in connection with the conduct of the war. If it helps to eliminate the idea and thought of war-time holidays and cessation of labour it will have accomplished notable good.

And Mr. Pennell has done his part so admirably. It is really difficult to avoid the language of exaggeration, and so, in order to give verisimilitude to our powers of artistic appreciation, we shall have to make the most of any minutiae of adverse criticism that may offer.

But not to the suppression of our natural desire to praise, where praise is so obviously due. The artist's imagination illuminates his art, aiding him in his labours and making more evident the divine afflatus that inspires him. Let us admit that at times his imagination gets the better of him, but not often is this the case. In previous work of Mr. Pennell's a certain carelessness in detail has been far too apparent, but we see no carelessness in this later work of his. And he gets his great effects so simply; there is no striving for effect, no stage-management, nothing meretricious.

We referred above to the possibilities of adverse criticism. It is, of course, part of the alphabet of art that a picture should tell its own story, independent of ex-

planatory title or of the showman's words of introduction. Not always is this the case with the sketches before us, though in very many instances the requirement is fully satisfied. "The Perambulator," "The Great Hammer," "Changing Shifts," "The Balloon Shed" are notable instances of success.

And again, in regard to the accompanying letterpress, which has a humour and character proving very attractive, there is at times a regrettable current of enthusiasm run riot, of affectation made apparent. Does Mr. Pennell really believe this? "How much finer are the lines of chimneys than the lines of trees, while the slowly-rising smoke gives the sky a beauty it never had before." Does Mr. Pennell really believe this? "No cathedral is more impressive, no altar finer; but instead of decking it with flowers the men were making it ready to roll more armour-plate. This drawing is but another proof that great work is great art, and that art to-day is joined to science—not religion; but the effect is just as fine." No, no; our artist can portray Tartarean poems here, such as "Furnaces at Night"; he can make art out of commonplaces, such as "Shot"; he can make a real picture of coke-ovens (see "Bye-products") and—curiously enough—his sketch of "The Acolytes Preparing the Altar of the War-god" may, without undue straining, suggest chancel, choir-stalls, reredos, high altar. All this may be so, is so; but Mr. Pennell's magnificent powers of artistic expression of his subjects must not lead him to indulge in unwarranted hyperbole or in artistic affectation of sentiment.

In this fine series of half a hundred sketches we regard as the very best "The Coal Mines," "Munitions River," "The Shops at Night—Changing Shifts," "The Big Bug," and "Shot"; but the whole exhibition is a monograph of noble work and a tribute to what our countrymen and countrywomen are doing in the cause of upholding civilisation.

### ARCHITECTURE IN RELATION TO HEALTH AND WELFARE.\*

#### LECTURE I.—ARCHITECTURE AND WAR.

On Thursday, November 30, Mr. Paul Waterhouse, M.A., F.R.I.B.A., gave at the Surveyors' Institution, by permission of the Council, the first of a course of three Chadwick Public Lectures on "Architecture in Relation to Health and Welfare." Architecture, said the lecturer, was essentially an element in hygiene, even as regards those aspects of architecture which are least connected with sanitation. For hygiene was the maintenance of health by the improving of environment, and architecture, good or bad, was an inevitable part of man's environment in all civilised life. Under the heading of architecture was necessarily included town planning—namely, the design not of individual houses, but of houses in groups.

War and architecture interacted on one another as cause and effect. Many of the effects of war on architecture were obvious and very distressing. (Some lantern slides were shown in evidence of the direct action of war on the building craft.) But destruction was not the only effect of war on architecture. Alongside of irreparable losses there were other losses—the obliteration of certain parts of cities which would probably, after the declaration of peace, herald new advances in town planning.

Moreover, England had learned during the war how to collect and how to spend public money on a large scale. Such expenditure would, it is true, leave England poorer, but the lesson so learnt might perhaps lead in time to expenditure—liberal expenditure—on the pleasures of peace rather than on the horrors of war. Here was a great chance for those larger schemes of municipal

\* Delivered at the Surveyors' Institution, Great George Street, Westminster, November 30, by Mr. Paul Waterhouse, Sir William J. Collins, K.C.V.O., M.D., Chairman of the Chadwick Trustees, in the chair.



town improvement which lacked only funds to give them realisation and success.

Possibly, also, England would have learnt that in municipal no less than in Parliamentary elections it was important where great work was to be done and where specially qualified custodians were required it was more important to choose specially qualified men than men distinguished merely by party tickets. London in particular needed guardians who were either experts in the care of London or willing to engage expert advice.

Touching in turn on minor points of detail in which architecture, town planning, and by-laws might be affected by the new ideas introduced by the war, the lecturer concluded his remarks by two further considerations—the effect of architecture on war, and the style of the future.

Under the former heading he dwelt on the spiritual or sentimental effect of architecture in that mysterious virtue of patriotism which—rather than commercial instinct—is the true mainspring of defensive war in a Christian people.

The latter topic he debated in special reference to that essential element of all good architecture which binds it inevitably to its own past. The lecturer saw no prospect whatever of unfettered innovation.

The Course will be concluded on December 14 at 5.15 P.M., at the Surveyors' Institution, when Mr. Waterhouse will deal respectively with "The Growth and Over-growth of Towns" and "The London of the Future." Sir Maurice Fitzmaurice, C.M.G., President of the Institution of Civil Engineers and Chadwick Trustee, in the chair.

### THE WORKSHOP IN EDUCATION.\*

By Mr. F. V. BURRIDGE, Principal of the L.C.C. Central School of Arts and Crafts.

IN all design one can only go forward from the point at which one finds things, and sound development must be based on a recognition of what has gone before and has necessarily become to an extent traditional. This does not involve acceptance of a situation, but it does mean that to proceed surely there should be sought all the good foundation there may be to build upon.

It is beside the point to tinker in compartments, to continue to argue whether a "classical" or a "modern" is the right line to take, to distinguish with departmental subtlety between science and art. That education may secure that everybody has his chance we must get down to a consideration of fundamentals.

All sound education is to the same end—the development of the powers of the mind, the stimulation of thought, the unfolding of the imagination, the cultivation of the inherent and latent personality.

Persons make up communities, and the whole community is the nation; therefore education must have the character which arises from its design being treated as a whole and being national in conception.

Our education lacks character because it is not an orderly developed whole arising from a national conception. It contains all sorts of oddments, partly of our own invention and partly foreign. There has been a considerable tendency to return from flying visits abroad and to patch into the British educational garment scraps which however rightly they may have been woven into the native design cannot harmoniously be let into ours. There should be a reconsideration of the essential subject of instruction to provide the means for the development of types of mind which cannot find adequate expression under existing curricula, and probably miss their real work in life.

Therefore, education, besides being national in character, needs more breadth in its design.

\* A Paper read at a discussion arranged by the Arts and Crafts Society in connection with their recent exhibition at the Royal Academy.

So far, the desire to broaden education has meant little more than adding to a mutilated literary education a number of watertight compartments. There is general education, and beyond there is further education which, in the main, is dealt with in an overspecialised manner. There is hardly any connection between the two, and except along the traditional literary line no orderly preparation in the former for the latter. Trade schools, secondary and other higher educational institutions, often deal with "specialised subjects" in separate compartments, which have little more than a nominal relationship with either one another or previous education. They exist independently and, without organised means of selection of those best fitted for particular vocations, youth is trained in them for special purposes.

But training may become the very antithesis of education. It may degenerate into a system by which pupils are put through their paces like performing animals. It may be the cramming of the virginal understanding with a mass of indigestible information which presupposes a large amount of thought that the student has not been capable of giving to it. Information so gained is not knowledge, for it either quickly fades from the memory or is useless because the brain has not been stimulated and has no power to assimilate it.

We want mechanical training no more than we want useless erudition; both are wasteful of money and life. Our need is the development of national intelligence. In its reconstruction education must have character arising from a national conception with a real continuity of purpose and an organised co-operation of all branches. It must be designed as a whole, with breadth, harmony of detail, and completeness.

Built on this basis, it would be sound and elastic. It would be an offer to the community which could be understood, which would be recognised as a good thing, and a real public demand for education would arise. At present there is no widespread enthusiasm for education because it makes no appeal to the imagination. It is a task. The English distrust it as a subtle means of side-tracking a boy from the job of making a living—for himself and others. This was delightfully summed up for me the other day by an old working man, who said that "a man will come to his level in spite of education." A significant commentary on the present day.

Real education is the perception and development of the individual according to bent and capacity so that he may learn to live; and important as are the problems of *what* you teach and *how* you teach, the most important is *whom* you teach.

So that different types of mind shall have the most fitting preparation for life the means of expression must be provided for them throughout the educational scheme. At present these means are inadequate because the design of our education has been built on a traditional literary basis, and in secondary education there has been too great a tendency to act as if a literary education were the only real education. A literary education is quite suitable for certain types of mind and in preparation for certain careers, but the bulk of the population of a prosperous country is concerned with the various branches of production and, to prepare for all purposes, different kinds of education are needed to enable different intelligences to grasp their happy moment in official, professional, commercial, industrial, or agricultural work.

"The most important activities are those of the man who works with head and hands in the ordinary life of the community."

These are the activities of production, which is by workmanship, and workmanship is art.

Workmanship as science is accepted, and there is a striving among the authorities to develop scientific industrial research; but any recognition that workmanship and industry, which form the backbone of the country, depend upon art for their best development, is conspicuously lacking.

Art is generally understood to be a thing apart, and the product of picture painters and craftsmen and simi-







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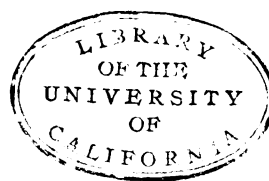
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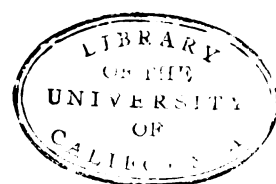


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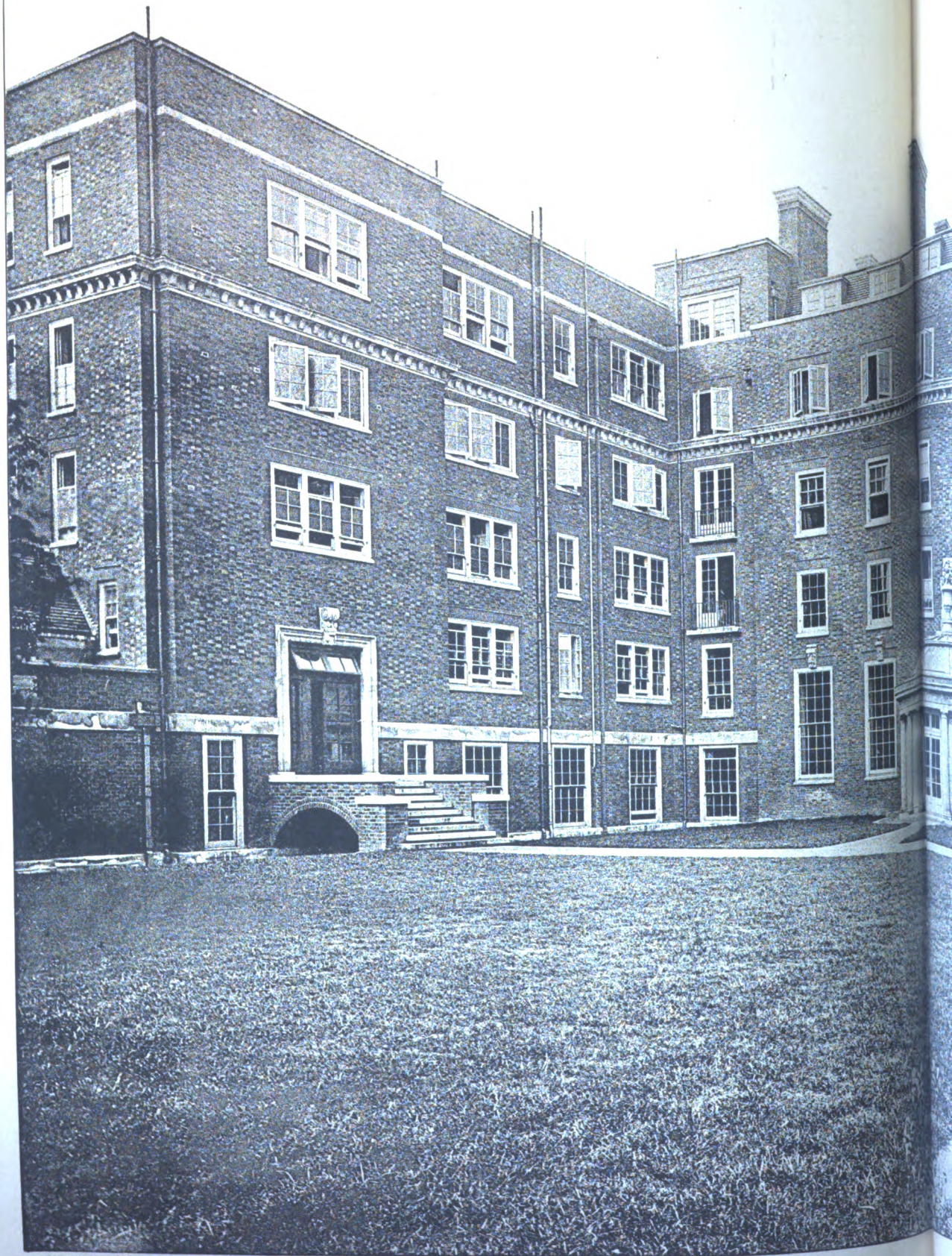
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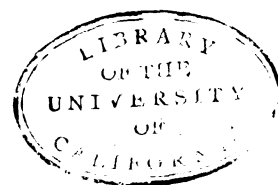
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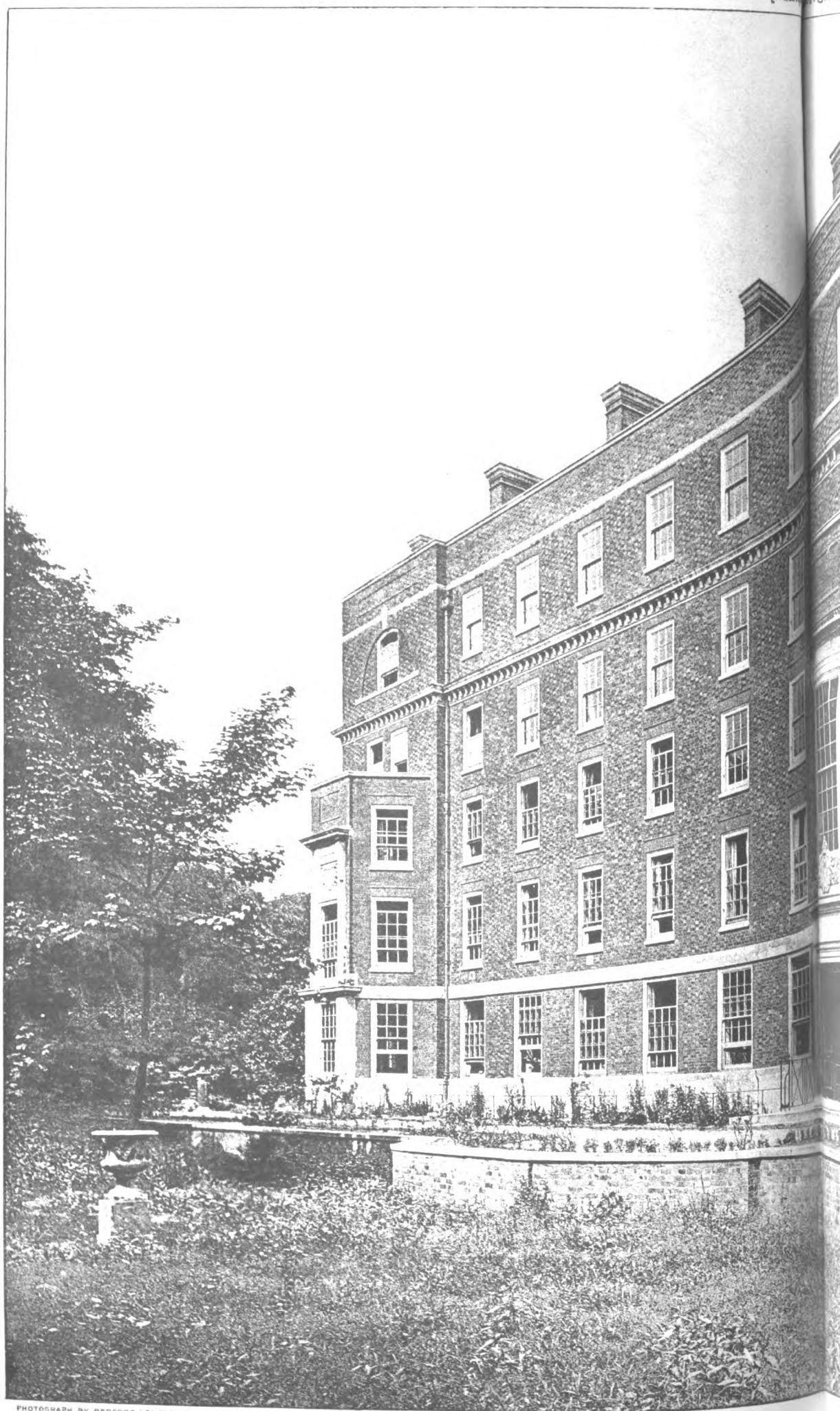
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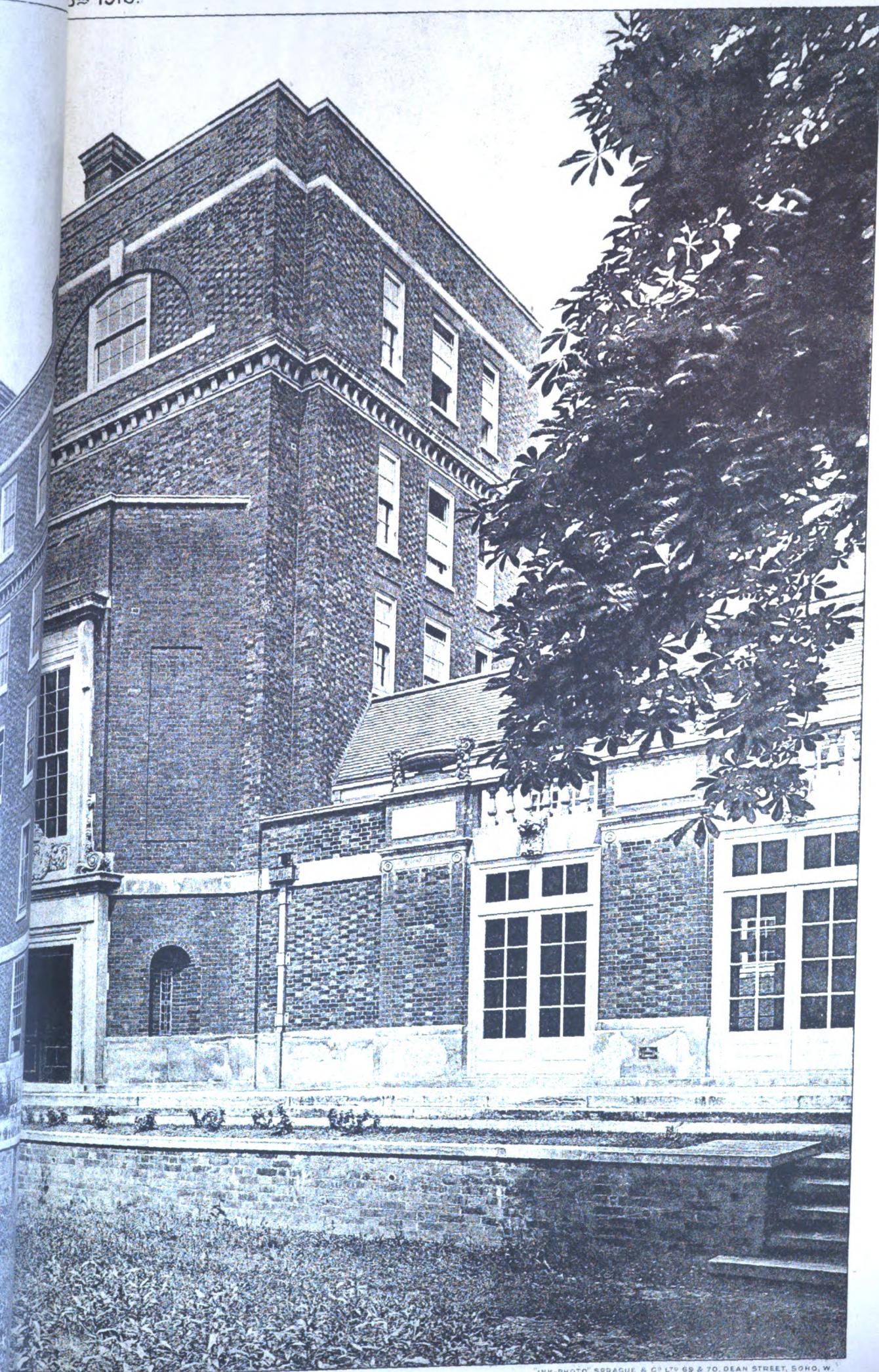




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EN HILL: EXTERIOR SOUTH FRONT.

HOLDEN, Architects





larly gifted and lucky people. It is spelt with a big A. It is a decorative and purchasable luxury, to be hung up, stood about, or applied to things. It is "applied" or "fine," according to whether it is useful or not. It is the concern of the general public only so far as they can afford to buy some of it as a demonstration of the possession of taste.

Never was there a time when the world stood in greater need of all that makes for the spiritual and imaginative side of things. Never should there have been greater determination among educators to safeguard ideals. Yet in June 1916, Convocation of the University of Oxford decided, *nem. con.*, to suspend the Slade Professorship of Fine Art for the period of the war. It seems impossible that, in the desire to seize the widow's mite, a so learned and responsible body should possess so little insight and should deliberately break their only link with art as a living force. But it is true, and as a revelation that art is thought to be only a decorative extra, it proves the need for intelligence rather than erudition.

We must work for the restoration of the broader meaning of art, for the reunion of the many subdivisions of art into art—one and indivisible in its association with life and work. It must be recognised as a necessity to give us a truer appreciation and use of our country and of ourselves.

Such a recognition of art means exact thinking, quality, workmanship; it is the real safeguard and means of development of the nation's trade and world influence.

The community is to be influenced most readily and permanently through the things it is always seeing, always using. Things which are usually the joint concern of designers, craftsmen, manufacturers, and distributors—the employers and the employed. It is by the intelligent co-operation of all these in making and placing before the public the best that hand and machine workmanship can produce that the people can be touched, their sympathy gained, and their appreciation stimulated.

The supreme lords of the workshop are the craftsmen who, by producing the few individual and outstanding things, are symbols and standards, who in making these things are conducting research and are the fountain head from which flows inspiration for the industries.

Fundamentally, then, drawing and workmanship must be treated as essentials throughout any properly organised scheme of national education. They are instinctive and world-old methods of registration, of observation, reasoning, imagination, and invention. Their practice encourages all these, and they stimulate not only the power of taking in, but are direct means of inducing students to give out.

A truer description can be given by a drawing than by words; as a registration of actual visualisation it is much more complete and suggestive, and it is more easily understood.

The Somme pictures are more descriptive, make a greater appeal to the imagination, offer a truer explanation and enable a fuller realisation than pages of literature do.

If education persistently developed powers of visualisation, history and geography would have a vastly greater interest, we should develop "bumps of locality," really see Nature when we look at it, understand weather and all those things which are now mysteries to the unobservant majority of us.

Again, the instinct to make a thing in its three dimensions is evidenced by most children, and by the astonishing expertness developed in bookbinding, printing, silver-smithing, cabinet-making, and other crafts by pupils of the L.C.C. Day Technical Schools. These are boys between thirteen and sixteen years of age, most of whom come from families which practise no craft, and none of whom have had in the elementary schools any special selection or preparation for craft. This being so, what a stimulus craft and industry would have if drawing and workmanship were basal subjects of education and used as a means of vocational selection, at present the greatest

want in our scheme. They would open up such possibilities, be so suggestive that for many children they would point the way to a career, and would gradually assume a greater specialised importance until education would be continued in and by means of a craft. By such a linking up general and technical education would secure a real continuity of general education, specialised education as pre-apprenticeship training, part-time further education during apprenticeship and in the employer's time, and, later, the continuation of education by the keen and intelligent worker, whether employer or employed.

Through art and the workshop in education thousands would be helped along the line of development Nature intended them to travel; good work would result from enjoyment of work; and, in all probability, the problem of intelligent supply for agriculture, craft, and industry would be solved.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### A.A. Active Service Committee.

SIR,—May I ask you to allow me, through the medium of your columns, once more to give publicity to the work which is being carried on by the A.A. Active Service Committee in supplying comforts and necessities, reading matter, &c., to members of the architectural profession and of the building trades who enlisted in the Army through the A.A. War Service Bureau?

From my own experience I know how very greatly the work of the committee is appreciated at the Front, and how welcome are the parcels they send out. Since the committee was first formed, thousands of parcels have been despatched, apart from the numerous professional periodicals and bundles of other reading matter with which a large number of men are supplied weekly.

To carry on this work during the coming winter further funds are required, and my object in writing is to remind your readers of the existence of the committee, and to ask them if they would send donations, whether in money or goods, to the Chairman, Mrs. Maurice Webb, at 37 Great Smith Street, Westminster. The supply of magazines is never up to the demand, and at the moment reading matter of all kinds is particularly required.—Yours, &c.,

A. G. R. MACKENZIE, President.

37 Great Smith Street, Westminster, S.W.:  
November 28, 1916.

#### The Housing Problem in Large Cities.

SIR,—Landlords of cottages deserve more credit for fulfilling the spirit of the wishes of Parliament than the tenants do; as, in at least one large city, the tenant sub-lets a couple of his rooms for more than the landlord gets for rent and rates.

Sir William Lever advocates that City Councils should buy estates, and give the land to the builders of cottages. The idea is somewhat startling to ratepayers, but the opinion of the owner of Port Sunlight deserves respectful consideration, and from one's experience of municipal enterprise, it is conceivable that Corporations would lose infinitely less, by giving away a site, rather than by building a house upon it, and conditions could be imposed entirely outside ordinary building by-laws—which latter might be relaxed when the freehold reverts to the Corporation—and there would be less competition with private owners than if the Council were to build; as no one will erect a building in the future at less than the cost of site and building in the past, and higher interest will be required in any case, to obtain an economic result.

Cities should be taken in wards, and all the derelict,

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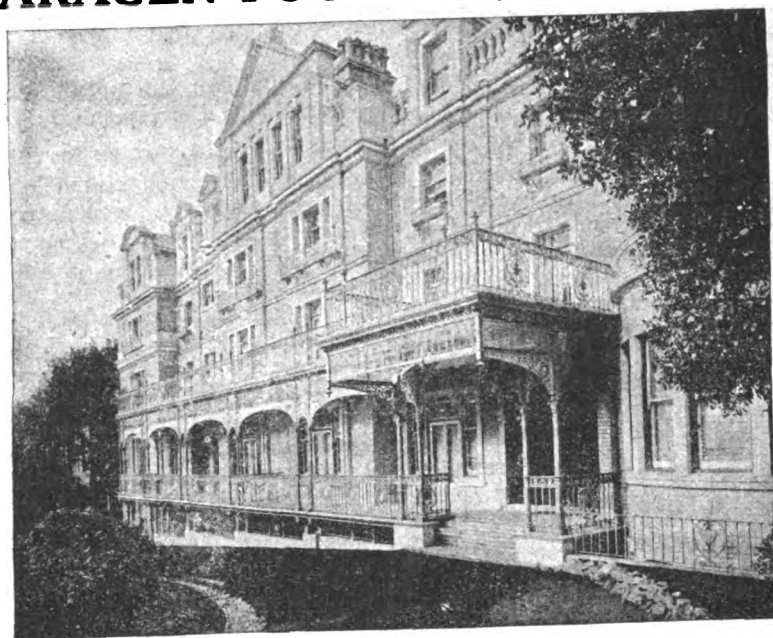


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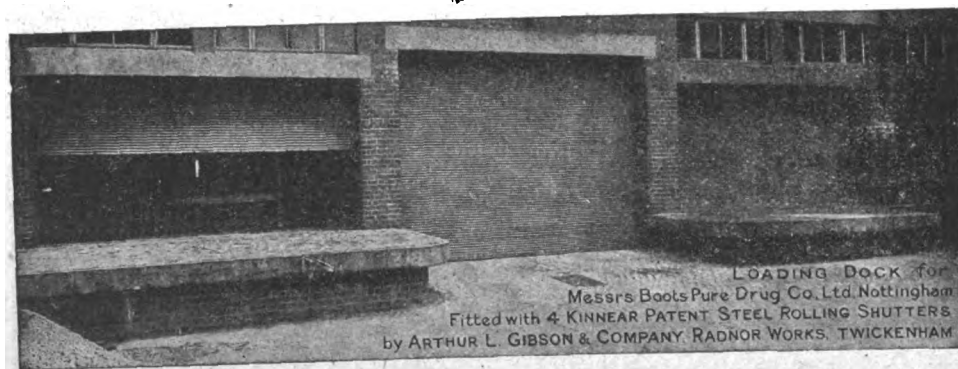
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untidy building sites—with notices pasted on boards, indicating that the Corporation do not intend to dedicate the land to the public—should be examined by the Councillors, and where possible recommended to the Council to let them at a peppercorn rent for 80 years (two lives), conditional that healthy houses for the very poor are forthwith erected thereon. In any housing scheme adopted by a public utility body, the catering is always for the better-class working man, who ought to be encouraged to build his own house through his building society. But it is a duty, as imperative as the war itself, for the health, not only of the very poor—the workers—but of the whole city, that the class with the least wage should be decently and healthily housed immediately the Army is disbanded; and it should be considered now, as it is not necessary for every one to think solely of the war.

Architects and engineers are not fully occupied, and the Corporation could command the best talent, and they would lose nothing, as extra rates would be collected, and cities would not have such a dreary, scabby appearance; and as the leases fell in, the land would revert to the Corporation, it would be then valuable, and the buildings could be destroyed. I have no hesitation in saying it would be much cheaper than any form of municipal housing.—Yours, &c.,

W. H. Wood.

Queen Square House, Leeds.

#### The Piecemeal Destruction of Rheims Cathedral.

SIR,—The reply of "W. P. B." to my letter on the above subject is studiously abusive and insulting, and has just that characteristic of which "W. P. B." complains as belonging to my correspondence over the non-de-plume I have chosen.

It is not a question of "if we had supplied, &c.," in the past, but the actual state of things that matters.

If "W. P. B." will put my letter on this subject and his reply to it before a competent military authority, I will abide by that authority's verdict as to which of the two letters is more fit for the Editor's "W. P. B."

To say my suggestion is "a gross insult to our Allies" is "the limit of ineptitude," and, I should say, penned by an upstart amateur strategist who has never been in the part of France under review. I have seen no mention of any air attacks whatever on those long-distance guns, possibly for the good reason that none have been made on them, or they would have been chronicled in the French official reports.

But my letter was written as a protest against the "no use crying over," which I criticised as I did.—Yours, &c.,

NON-IGNOTUS.

[This correspondence, having descended into mere inelegant abuse, must now cease.—Ed.]

#### BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

##### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

##### ENGLAND.

###### BEDFORDSHIRE.

*Bedford*.—Additions, Hurst Grove, for Messrs. W. H. Allen, Son & Co., Ltd.

Store, Cauldwell Street, for Mr. F. Ray.

###### BUCKINGHAMSHIRE.

*High Wycombe*.—Cottage Hospital: additions.

###### DURHAM.

*Annfield Plain*.—House, New Durham Road: addition for Mr. A. E. T. Welsh.

###### ESSEX.

*Barking*.—Proposed Carnegie Public Library (£6,000).

*Braintree*.—Workshop, Coggeshall Road. Mr. A. G. Wicks, builder.

*Harwich*.—Cottage Hospital, Dovercourt: Fryatt Memorial wing.

###### LANCASHIRE.

*Rainford*.—Foundry for Johnson's Engineering Works.

###### LEICESTERSHIRE.

*Mellon Mowbray*.—Factory, Thorpe End: extension for Messrs. Tebbus & Co.

###### SURREY.

*Byfleet*.—One hundred and thirty cottages, Oyster Lane Estate, for Messrs. Vickers.

###### WARWICKSHIRE.

*Coventry*.—Twenty-two houses, Bolingbroke Road, for Mr. C. Blockley.

The "Humber" Works: extension.

*Rugby*.—House, Barby Road, for Mr. A. F. Whitaker. House, Hillmorton Road: alterations for Mr. F. Thompson.

"Te Hira": addition for V.A.D. Hospital.

###### YORKSHIRE.

*Batley*.—Parish Church, Staincliffe: alterations. Sir C. Nicholson, Bart., F.R.I.B.A., architect, 2 New Square, Lincoln's Inn, London.

*Castleford*.—Warehouse, Wheldon Lane, for the Castleford Co-operative Society.

*Skipton*.—Cottage Hospital: additions.

*Thornhill (Dewsbury)*.—Proposed Council school for mentally deficient.

##### WALES.

*Colwyn Bay*.—"Corriemoor," Llanrwst Road: motor garage for Mr. T. Spencer.

Two houses, Kenelm Road, for Mrs. Hilton and Miss Taylor.

House, Wynnstay Road, for Mr. R. Evans.

*Rhos-on-Sea*.—Shop, Colwyn Avenue: additions for Mr. J. M. Roberts.

##### SCOTLAND.

*Dundee*.—Cinema Theatre, Bonnybank Road: extension for Tivoli Theatre Company.

Cinema Theatre, Arthursstone Terrace: alteration for Mr. J. Bell.

Store, Meadow Street: alteration for Messrs. Samson & Unna.

*Kirkcaldy*.—St. Brycedale House: conversion into hospital for aged and incurables, for trustees of the late John Hunter.

##### IRELAND.

*Athea*.—Carnegie Library.

*Broadford*.—Carnegie Library.

*Cork*.—Motor factory, Cork Park, for the Trafford Engineering Co. (of Manchester).

*Dublin*.—Premises, Cork Street: additions. Mr. E. Hayes, M.R.I.A.I., architect, 11 Nassau Street.

No. 6 Townsend Street: alterations. Messrs. Moore, Keefe & Robinson, architects, 11 Fleet Street.

*Knockaderry*.—Carnegie Library.

*Limerick*.—Premises: additions for Athea Co-operative Creamery Co. Mr. J. O'Malley, architect, 10 Glentworth Street.

*Peenagh*.—Carnegie Library.

#### CONTROLLED ESTABLISHMENTS CANTEENS.

WE understand that arrangements have been made with the Ministry of Munitions whereby controlled establishments canteens—the plans of which have been approved by the Canteens Committee of the Central Control Board (Liquor Traffic)—will be granted a building licence provided that no steel is used in their construction. The owners of the controlled establishments will be free to employ their own architects, and it has also been arranged that, should he be asked to do so, the President of the Royal Institute of British Architects will suggest the names of architects in the different districts where it is proposed to build canteens.



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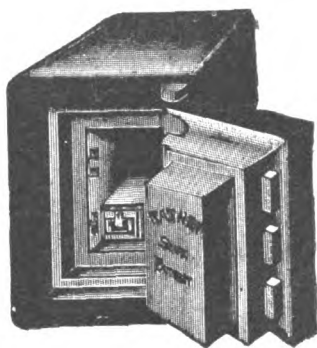
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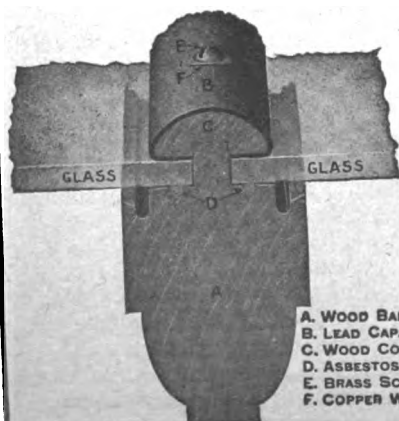


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# THE ARCHITECT

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## FORTHCOMING EVENTS.

Friday, December 15.

Illuminating Engineering Society: An Account of Events during the Vacation, including some suggestions regarding War Economies in Lighting, will be delivered by Mr. L. Gaster (Hon. Secretary), at the Royal Society of Arts, at 5 P.M.

Monday, December 18.

Royal Institute of British Architects: Second General Meeting (Business) of the Session 1916-17, at 4.15 P.M.

Tuesday, December 19.

Institution of Civil Engineers: Paper to be further discussed, "Experiments on Earth Pressures," by Mr. Ponsonby Moore Crosthwaite, B.A.I., M.Inst.C.E., at 5.30 P.M.

Thursday, December 21.

Concrete Institute: Paper entitled "Pile Driving and the Supporting Power of Piles," by Professor Henry Adams, M.Inst.C.E., at 5.30 P.M.

L.C.C. Central School of Arts and Crafts, Southampton Row, W.C.: University Extension Lecture XII. on English Architecture: "Mediaeval Public Buildings, Colleges, Hospitals," by Mr. Banister Fletcher, F.R.I.B.A., at 6 P.M.

## VERNACULAR BUILDING.

ARCHITECTURE is not merely an affair of cathedrals and palaces, of the grand manner in the planning of towns and public buildings. It is in its widest application concerned also with the dwellings of the humblest workers, and in these it will often find traditions of building construction that have become obsolete or overlaid in edifices of greater prominence and presumed importance. It has been too much the custom amongst students and writers on the history of architecture to restrict their investigations of mediæval architecture in our own country to the construction of great ecclesiastical buildings and the dwellings of wealthy landowners. An inevitable result of the concentration of thought on the masterpieces of art production, whether in the domains of architecture, of sculpture, or of painting, has been the growth of an idea that art is something restricted to the higher planes of human activity, something outside the compass of our daily lives. This fallacy, which arose during the eighteenth century and the early part of the nineteenth, is now, we may hope, under the influence of the Arts and Crafts movement, and of a general inclination of thought of which this movement is the active expression, by way of becoming dispelled. Hence we welcome the appearance of a volume\* on "The Development of English Building Construction," by Mr. C. F. Innocent, which gives us the result of much careful research into the history of vernacular building in Great Britain.

We cannot do other than agree with the dictum of William Morris that the homely old English farmhouses and cottages were models of architecture in their way. Scattered up and down the land, they possess an essential requirement of successful building in that they appear to be part and parcel of the landscape. The tile hanging of Kent and Sussex, the brick nogging of Hertfordshire, the timber and plaster of the western Midlands, the stone walls and stone slates of the Cotswolds, all seem to be as much a part of the landscape as the hedges and the trees. This character of congruity with environment is due to the indigenous nature of their construction. They have grown up in accordance with the satisfaction of local necessities by the use of local materials, and their beauty came as the spontaneous product of the hands of their constructors, and it is even possible that this beauty was not fully apparent to their builders.

The most primitive form of residence, after the troglodyte period, is still to be seen in the wigwam-shaped huts of charcoal burners and other woodland

workers, which are in widespread use in Europe, and of which Mr. Innocent gives examples from South Yorkshire. As soon as necessity required a more commodious interior than was afforded by a circular hut, there arose the problem of support for the ridge of the roof. The most simple method of supporting the ridge-pole is that in which the pole is sufficiently long and pliable to allow of the ends being bent downwards to the ground, and the pole is, roughly, arch-shaped; this is still practiced by savage peoples, but, says Mr. Innocent, there is no evidence for its use in this country. When the pole cannot be bent the most simple and usual method of carrying it horizontally is to support it by an upright pole under each end and such poles generally have forked ends in which the ridge-pole can lie without danger of side-slip.

The use of such a method of supporting the ridge-pole, when this latter becomes so long as to need intermediate posts, introduces a number of troublesome obstructions to the interior. From this cause, and also for the securing of more effectual support against overturning, there soon resulted the method of using inclined but naturally bent timbers, or crooks, which, meeting at the ridge, stood wide apart at the ground, and by their curved shape formed a quasi-pointed arch. The great prevalence of oak forests in ancient and mediæval Britain furnished an ample supply of such curved-tree principals, and Mr. Innocent devotes a considerable part of his book to the description of examples of this method of construction.

It is rather remarkable that the author limits the distribution of buildings "on crucks" to those counties of England which lie west and north of a line drawn from the Wash to the Bristol Channel. "This," he says, "may be due either to Celtic influence, or more probably because the west and north were the most backward parts of the country in culture, and methods of construction were used there after they had been discarded by the builders of the south and east." The theory of Celtic influence one way or other can hardly be accepted, since this method of construction is found in North Wales and Scotland, but not in South-West Wales, Ireland, and Cornwall.

A glance at the map strikingly suggests that it is the ancient Kingdom of Mercia which is the home of the "cruck," and that the method is the introduction of those particular tribes of Vikings who settled in the northern parts of England, and was unknown, or at least unpractised, by the settlers in Wessex, Sussex, or East Anglia.

An interesting chapter in Mr. Innocent's book deals with the tools and the workmanship of the wright or carpenter and the joiner, and gleans information from

\* "The Development of English Building Construction." By C. F. Innocent, A.R.I.B.A., Honorary Lecturer in English Architecture at the University of Sheffield. (Cambridge: The University Press. 10s. 6d. net.)



long-forgotten poems and dictionaries by cross-reference from monkish Latin and mediæval English.

The walls of vernacular buildings in the middle ages were perforce of other material than expensively wrought stone and almost equally costly brick. It is one of the curiosities of mediæval building that the craft of the brick-maker, which had been so thoroughly established during the Roman occupation, should have almost completely disappeared during the middle ages. It emphasises the enormous difference between the wealth of the church and of the nobility and the poverty of the workers.

Hence we have in vernacular building a whole series of walling materials and methods of construction; wooden walls, of which the blockhouse type was probably too costly to be used in a country where pine wood was the exception and hard woods, oak, ash, elm, and beech the rule. Greensted Church can scarcely be taken as a typical example, the more so as the vertical disposition of its tree-trunks is opposed to all usual methods of timber blockhouse building.

Post and panel was the normal English use of timber, varying in disposition according to locality. The filling was infinite in variety, dictated by local possibilities and traditions; wattle and daub, lath and plaster, wooden boarding, clay, earth and mud, cob and sun-dried bricks, rubble stone and slate. All these with more or less, even without any, timber form the walling material of cottage and farmhouse building, and furnish a wide field for investigation and record.

Roofing material in vernacular building of the middle ages was essentially regulated by local possibilities, and to this restriction in use is due in no small degree the harmony such building displays with its environment. Stone, slate, shingles and slats, tiles, thatch, all have their local significance and appropriateness. Mr. Innocent, by the way, includes in his volume a very thorough chapter on thatching, which, however, fails of perfection by its no more than cursory allusion to the reed thatch of East Anglia.

In his description of early types of doors Mr. Innocent omits mention of the type with vertical boards overlapping at their edges and nailed, which is quite as simple to construct as the ledged door, and more effective.

Many other details of vernacular building are described by Mr. Innocent, whose book can be well commended for its painstaking and erudite investigation of the methods of English building construction in common use, which are now rapidly disappearing with the decay and demolition of the cottages and farm-houses in which they were employed.

#### NOTES AND COMMENTS.

THE very representative meeting held last week of employers and trade unions under the chairmanship of the Right Hon. Frederick Huth Jackson must be regarded as epoch-making and of happy augury for the future relations of employers and employed in this country. The employers present represented not only their individual firms but the Federation of British Industries, which is claimed by its secretary to be the most important and representative industrial organisation in the country, which comprises among its members numerous large firms and over forty associations in the iron, steel, engineering, shipbuilding, textile, dyeing, brewing, electrical, chemical, and other industries. The resolutions passed at this meeting, and for the carrying into effect of which a very influential committee has been formed, were as follows:—

1. That the cordial and whole-hearted co-operation of employers and employed will be the most important element in the success of any scheme for dealing with the reinstatement of the men of the Forces and munition workers in civil employment, and the general redistribution of labour after the war, and for handling any subsequent problem of unemployment or labour dislocation.

2. That no machinery now in existence can adequately deal with the reinstatement in civil employment of the present Forces.

3. That powers should be obtained from Parliament to set up without delay a central statutory board to regulate and supervise (a) the reinstatement in civil employment of the present Forces; (b) the settlement in normal employment of civilian workers now in Government or controlled establishments; (c) any general redistribution of labour arising out of the war. Appropriate transfers of existing powers and duties will have to be made by the various Government departments to the central statutory board, so that complete authority shall be vested in the new board.

4. That not less than two-thirds of the members of this central statutory board should be representatives of employers and employed in equal numbers, such members being appointed by the Crown from associations of employers and from the trade unions of the United Kingdom respectively, the remaining members of the board to include representatives of Government departments, &c.

5. That where a trade union, by arrangement with employers' associations, is capable of placing its members in employment, it should be competent for the central board, if it deems it to be in the national interest, to delegate to the trade union in question the responsibility of dealing with the reinstatement of its own members.

6. That local boards should be established wherever necessary to assist the central board. Such local boards to have the same proportionate representation as is provided for the central board.

7. All expenses properly incurred by the central and local boards should be paid out of moneys provided by Parliament.

An admirable view of the essentials for the future harmonious working of capital and labour in the development of the national prosperity is expressed in the report of the preliminary committee appointed at a conference held at Glasgow in August last, at which 300 firms engaged in the iron, steel, engineering, shipbuilding, and allied industries were represented. In the committee's opinion, the factor that will overshadow all others is the question of increased production, and this can only be attained by a more cordial co-operation between employers and employees than has existed in the past—by efficient equipment and organisation, on the one hand, and, on the other, by the abolition of all restrictions and practices limiting output.

Hence it is essential that in the remuneration of employees some form of payment by results should be adopted wherever possible, with basis rates, compatible with the productive effect of labour, fixed on such a scale as will ensure for all willing workers a good and comfortable standard of living. Once these basis rates have been equitably fixed and established, an increase in earnings, due to increased results, should be encouraged in every way, and workmen should have the security given them that any enhancement of their earnings following increased production will not be made a ground for rate-cutting, as the whole success of the system must inevitably rest upon mutual confidence. In view of the foregoing considerations, any organisation which may be instituted should be prepared to co-operate with labour, as without such co-operation and assistance the desired result will be difficult of attainment.

It is proposed that in settling questions affecting labour use should continue to be made of existing employers' and workers' associations, but in order to co-ordinate the activities of the various organisations, to obtain due recognition of properly constituted employers' and employees' associations; to confirm or endorse voluntary agreements between employers and employees, and, where desirable, to give legal effect to the recommendations of these associations, it is considered that some central organisation is necessary which should have Governmental recognition to give it weight and authority. The central organisation should take the form of a national advisory council of industry, consisting of representatives of employers and of employees, who would

meet either separately or together, as the nature of the questions to be considered might require. It is suggested that a Minister of Industry should be appointed, who should not be a permanent official, and whose appointment or retirement should not be dependent on a change of Government. Such a Minister would form the connecting link between the Government and the central organisation, and would preside over the meetings of the latter.

Among the questions with which it is contemplated the central organisation should deal are tariffs, banking methods, transport, markets, sickness, unemployment and pensions, regulation of wages, finding of labour, apprenticeship, women workers, machinery for the settlement of disputes, technical education, and industrial research.

The deputation to the Edinburgh Town Council from the Edinburgh and District Trades Council and the Labour party on the housing deficiency rendered acute by the new development at Rosyth is but a forecast of what may be anticipated all over the country, and we may expect further similar wild demands to those then made, such as that large unoccupied houses in the city should be commandeered and that a special department should be formed by the Corporation to build houses and roads. These demands are the result of the suppression of private enterprise in house building by the Government.

The decision of Mr. Pollock, the Official Referee, in the action by the Kleine Patent Fire-resisting Flooring Syndicate, Ltd., to recover damages from Messrs. Kilby & Gayford, the builders of Messrs. W. H. Smith & Son's new premises, for the rescission of the contract for Kleine floors introduces a new source of trouble in connection with sub-contracts in building. Although the architects, acting under the covenants of the general contract, by a variation order, cut out of the contract the Kleine floors, the builders have been adjudged by the Referee as responsible for the payment of £1,500 to the Kleine Company for damages on the determination of the flooring contract of £11,364. The Referee would not decide as to the right of the architects to cancel the order for the floors, but held that the architects' order did not put an end to the contract between the plaintiffs and the defendants. Thus, if this decision stands, it would appear to be the law that if an architect, rightly or otherwise, makes a variation on an order given to a sub-contractor the builder is still liable to the sub-contractor on the sub-contract.

The net result of amendments proposed or made in the Dublin Reconstruction Bill during the Committee stage is that there is no hope left of anything like the "grand manner" being applied to the reconstruction of the devastated Sackville Street area. The Corporation is not to be in a position to prescribe the manner of the rebuilding, but the City Architect may require reasonable alterations in the design of any proposed façade, subject to arbitration as to the reasonableness of his requirements. That is, Sackville Street may reach the level of London's Kingsway and Aldwych, a collection of samples of modern architecture, but will not attain excellence as a fine piece of civic design.

It seems that the Dublin Corporation is not yet out of the wood as regards the loan of two million dollars from America for housing. The latest position is that the Corporation will have to take up at once a million and a half dollars at 6½ per cent., which they cannot use immediately. Hence they will have to invest part of the money and pay income-tax on their interest, which will thus stand as at net 4½ per cent. There is also the difficulty to be faced of a possible assessment of income-tax on the houses to be built, although it is fully anticipated that the high rate of interest paid on the loan and the high cost of building at the present time will mean a loss and not a profit on the housing scheme.

We quite hope that the project of fitting Liverpool Cathedral with a carillon, as well as the peal of ringing bells which is practically assured, will be brought to fruition. We have too few carillons in this country, though we have no desire to see the peculiarly English peal ousted in their favour.

In the Trade Supplement of the "Times" there has appeared the following interesting account of the trade with Cuba in flooring tiles, which is indicative of the competition British manufacturers of building materials have to meet: "A lucrative trade has been carried on for years between Germany and Cuba in tiles which are used in very large quantities for flooring. In other cases, practically all the floors of the buildings are of brick, cement, or marble. A small number of local factories manufacture tile, brick, and firebrick, and these products are generally used in local construction; among the more wealthy house-owners an article of superior quality is in demand, and it is this that German manufacturers had set themselves to supply. At one time British manufacturers enjoyed a very considerable connection, but the competition of both Germans and North Americans has practically killed it. At present, owing to the general prosperity of the island, many new and imposing residential, as well as business, premises are being erected. Floor-tiles most in demand measure 20 centimetres square or, say, 25 tiles go to the square metre and cost when made locally £10 to £20 per 1,000, the average price being about \$70, or, say, £14 per 1,000. As the fire-brick made locally is of an inferior quality, the greater part used is imported. Here, again, England used to send out a large amount of this class of building material, but the United States have superseded us. The importation of floor, wall, ornamental, and mosaic tiles is valued at about \$125,000 (= £25,000) annually; that of roof tiles, \$115,000 (= £23,000). A not inconsiderable part of the fine tiles imported formerly came from Germany, but the market for these has now been snatched by the United States, which may be relied upon to keep it if possible."

The question of the liability of railway and canal companies and other private owners of bridges to maintain their bridges at an adequate strength was considered at the annual meeting of the National Traction Engine Owners and Users' Association.

Mr. W. Joynson-Hicks, M.P., legal adviser to the Association, explained the position with regard to the decision of the House of Lords in reference to private bridges carrying public roads. Traction owners and users, he said, had for years had difficulties with regard to railway and canal bridges and bridges privately owned. The question was whether the owners of such bridges were bound to keep them strong enough for the traffic of to-day or only for the traffic of forty, fifty, sixty, or seventy years ago, when the bridges were built. The case had been twice heard by the House of Lords, the four judges being equally divided. On the second hearing the House of Lords dismissed the appeal, deciding by a majority that the railway company concerned in the action was only bound to keep the bridge as strong as was necessary for the traffic when it was built, though Lord Haldane was in favour of the contention that it was the duty of the bridge-owning authority to make the bridge as strong as the road on each side of it. Mr. Joynson-Hicks suggested that the carrying trade of the country should come to terms with the County Councils Association, and agree with them upon a Bill upon which they could fight the railway interests in Parliament.

THE Torquay Association of Building Trades Employers have informed the Corporation that their members would decline to submit any tenders in competition for contracts invited by the Corporation over the value of £300 unless a specification and bill of quantities were provided.

## ILLUSTRATIONS.

PALACE OF THE MINISTRY FOR THE COLONIES,  
GHENT EXHIBITION, 1913.

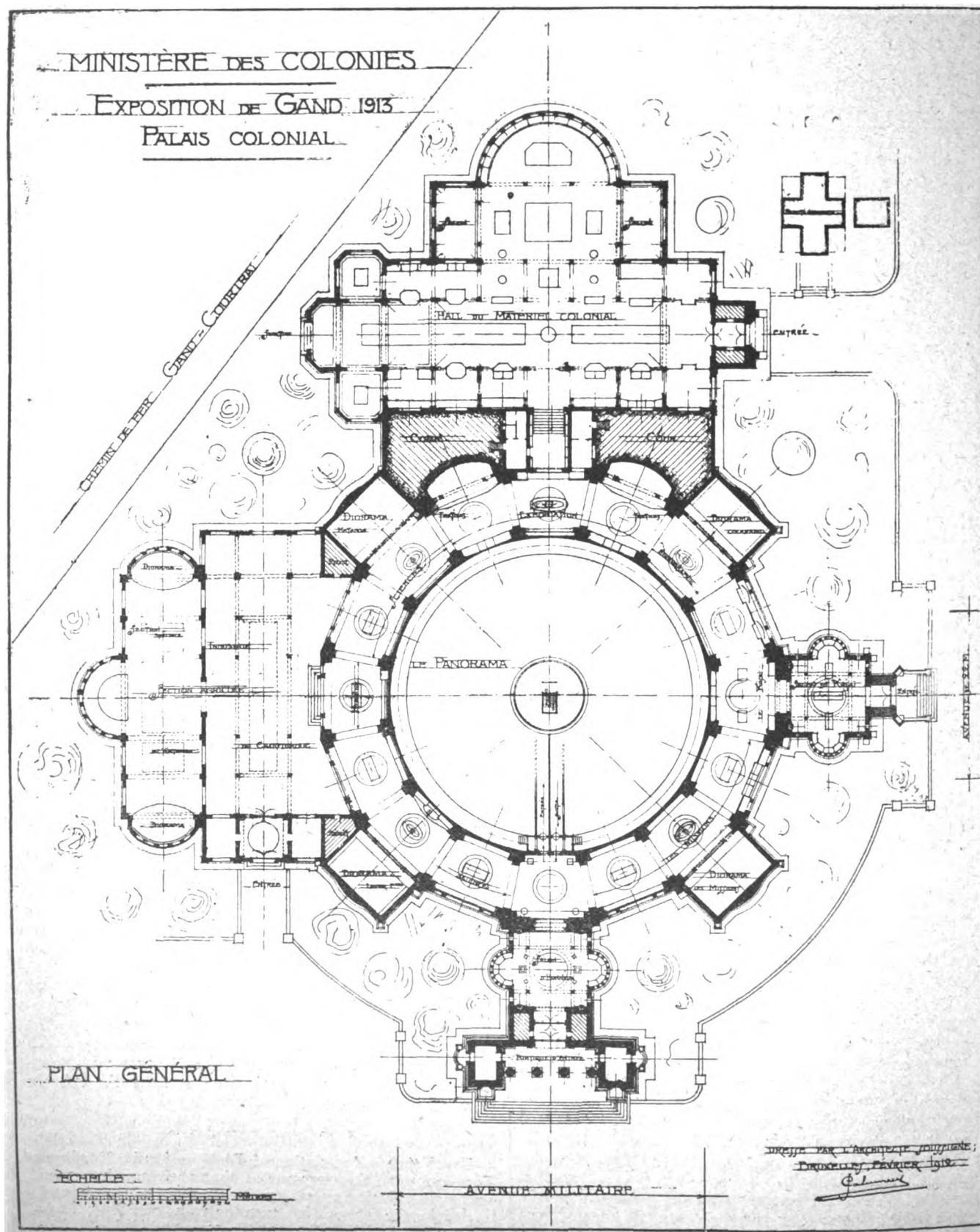
THE Belgian Government's object in organising the important Colonial Exhibition at Ghent in 1913 was to show to the Belgian people the enormous work done in their Colonial Empire.

A vast palace was erected. The central portion was occupied by an admirable panorama executed by the artists, Paul Mathieu and Alfred Bastien. The circular

gallery was reserved for the ethnographical, documentary, and administrative division. The large annexe on the right was occupied by the agricultural exhibits, and the grand hall at the end by various industries.

At the principal entrance, behind the peristyle, the Hall of Honour, in the centre of which were statues of their Majesties the King and Queen, contained ivory sculptures by the best Belgian artists.

The accompanying photographs were shown at this year's Royal Scottish Academy. They represent the design of M. Jean-Joseph Caluwaers, Corresponding Member R.I.B.A.





# CHURCH OF ST. BARBARA, COVENTRY.

THE church illustrated in this drawing is one which it is proposed to erect in a newly developed district in Coventry. It was hoped that the actual building might have been begun some little time back, but the war intervened, and the scheme has been postponed at any rate till the end of the war. The design is by Mr. Arthur Bartlett, F.R.I.B.A., and the drawing was exhibited in this year's Royal Academy.

## SCIENCE AND INDUSTRY, WITH SPECIAL REFERENCE TO THE NATIONAL PHYSICAL LABORATORY.\*

By R. T. GLAZEBROOK, C.B., M.A., D.Sc., F.R.S.,

*Director of the National Physical Laboratory.*

THE subject is a wide one, even when limited by the special reference. It has been much discussed lately, and the Report of the Privy Council Committee for Scientific and Industrial Research published in September last has brought to the fore many of the problems that need solution, if we wish to place at the disposal of the nation all that Science can contribute to the good of Industry.

I hope to show you to-night that the National Physical Laboratory has assisted in the progress of the past ten or fifteen years, and that by its development we should gain a powerful instrument to aid us in the future.

The Advisory Committee of the Privy Council was appointed to consider, among other objects, proposals "for establishing or developing special institutions or departments of existing institutions for the scientific study of problems affecting particular industries and trades."

The earlier clauses of its first Report deal with previous Government action in the present century; let me commence by quoting them:—

"Certain events which preceded the establishment of the Council are worthy of record because they are now seen to have a general significance which was not realised at the time. As early as 1900 the Government had taken an important step in the encouragement of organised scientific support for our trades and industries. The National Physical Laboratory was then established, with the assistance of a grant from the Treasury, under the control of the Royal Society, and opened in 1902 by His Majesty the King, then Prince of Wales. 'I believe,' he said on that occasion, 'that in the National Physical Laboratory we have almost the first instance of the State taking part in scientific research. The object of the scheme is, I understand, to bring scientific knowledge to bear practically upon our everyday industrial and commercial life, to break down the barrier between theory and practice, to effect a union between science and commerce. This afternoon's ceremony is not merely a meeting of the representatives of an ancient and world-renowned scientific society for the purpose of taking over a new theatre of investigation and research. Is it not more than this? Does it not show in a very practical way that the nation is beginning to recognise that if her commercial supremacy is to be maintained greater facilities must be given for furthering the application of science to commerce and manufacture?' It is nearly half a generation since these wise and far-sighted words were spoken; to-day they certainly convey more to the whole nation than they did when the Government made its first modest capital grant of £13,000 for the buildings and equipment of the Laboratory and an annual allowance for maintenance of £4,000 for five years.† His Majesty's pregnant summary of the national need might indeed have been addressed to the Advisory Council, for it expresses admirably the conviction

\* Address delivered to the Birmingham and Midland Institute on December 4.

† The grant was gradually increased to £7,000, at which figure it has remained since 1908-9. In addition a grant varying from year to year and amounting to £14,400 for 1916-17, is made for aeronautical researches.

with which we have begun our labours. The Laboratory has done and is doing most valuable work for our industries and for the Government, and it might have done much more had it been endowed with anything like the annual subvention of nearly £100,000 which the American Bureau of Standards receives for development and maintenance from the United States Government.\* But we think experience has shown that no single institution, however great or distinguished, can expect to do more than a part of all that our vast industries require."

It was remarked in connection with the work of the Privy Council Committee that had the Laboratory since 1902 been really placed in a position to do the work indicated by His Majesty the task of the Committee at the present day would be much lighter, and the advances already made still more considerable.

"The object of the scheme is to bring scientific knowledge to bear practically upon our everyday industrial and commercial life."

In this process, as we shall see, and has been well pointed out by various recent writers—see Dr. Rosenhain's paper before the West of Scotland Iron and Steel Institute, The National Physical Laboratory, Its Work and Aims; Dr. Mees' Pamphlet on Science and Industry, issued by the Advisory Committee of the Privy Council—three distinct stages may be observed. We need:—

(1) The work of the man of science in his research laboratory.

(2) The investigations which go on in an industrial research laboratory, developing new processes or introducing new products.

(3) The works laboratory proper controlling the quality of raw materials, finished products and processes.

Let us note then, in the first place, we must have scientific knowledge. That point I need not labour, but note also that to be successful that knowledge must be pursued for its own sake. Each of the modern practical applications of science had its foundations in purely scientific work, and to quote Professor Gregory, in his recent book, discovery or the spirit and service of science was not the result of deliberate intention to make something of service to humanity. It is hardly necessary to illustrate this; let me, however, give one classical example. The discovery of the laws of electromagnetic induction is due to Faraday, and is described in his first three series of "Experimental Researches," published in 1831-33. Oersted, Ampere, and Arago had investigated some of the phenomena connected with the magnetic force produced by an electric current, and to Faraday it appeared clear that conversely it should be possible to produce electricity from magnetism, as he put it. It is difficult to picture the world to-day without electric power, and yet the whole development of electrical machinery, as we know it, rests on the laws described in these brief scientific papers. Each advance of knowledge brings its benefits to mankind, and in a general way Faraday may have hoped to be a benefactor to his race by widening the sphere of knowledge, but it was the desire to know the truth which led him on and to which we owe such tremendous consequences.

We must have the student of pure research, the genius who goes on his way discovering new truths, irrespective of consequences, laying bare more and more of Nature's secrets and unravelling her mysteries.

In England we have never lacked such men, our roll of great discoverers has been a glorious one. Too frequently their lives have been hard and difficult, prophets without honour they have lived; to-night it is not my task to speak of them beyond urging the importance of giving every encouragement to such men by supporting, in the most generous spirit any among you here in your University or elsewhere who are advancing the bounds of knowledge, searching for truth in some of its difficult byways. The endowment of pure science is essential; without it the attempt to apply science to industry fails.

\* Cf. Report of Board of Trade delegates to Sixth Congress of International Association for Testing Materials (1912) Cl. 7185.

This, however, is not my subject to-night; let us turn for a short time to the third need among those enumerated above—the works laboratory proper. My audience will appreciate perhaps more fully than I the need for this.

It is necessary, if for no other reason, to maintain the standard of the output, to secure that the proper grade of material is supplied to the works, to check the instruments in use, and to test the product in its various stages of manufacture. The days are gone when successful manufacture could be carried on entirely by rule of thumb, trusting to the skill of some trained workmen for the success of each delicate operation, when the hereditary instinct passed down from father to son was sufficient to produce each year practically the same results. New processes come, which appear likely to improve production or to reduce its cost; the works laboratory serves to test these. New products are suggested, which may or may not have the advantages claimed for them; this can be investigated in the works laboratory, and all these investigations and tests must go on in the works themselves under the eyes of men familiar with the process of manufacture in its every stage. The works laboratory must extend, and others are more competent than I to outline the direction of extension and to guide its growth.

Now between these two—the man of science researching in his University or College, and the works chemist toiling in his shop—there is a gap. Some means are needed to make the discoveries of science available to the manufacturer to secure to him the advantages which come from the growth of knowledge to keep him in the forefront of his trade. This, if I grasp the problem aright, is the function of a Laboratory of Industrial Research, and among such laboratories the National Physical Laboratory should hold a prominent place. The National Physical Laboratory has another function to fulfil, it is a great standardising and testing institution. I will recur again to that aspect of its work; for the present let us consider what is required in a laboratory for industrial research and see how far these requisites are supplied at Teddington. Quoting again from Dr. Mees' paper, already referred to, "The kind of research work," he says, "involves a laboratory very different from the usual works laboratory, and also investigations of a different type from those employed in a purely industrial laboratory. It means a large, elaborately equipped and heavily staffed laboratory engaged largely on work which for many years will be unremunerative, and which for a considerable time after its foundation will obtain no results which can be applied by the manufacturer."

This work clearly needs a special house, it cannot be done in the laboratory of a technical institute. The main work in such a laboratory as that of a technical institute must be educational. The object of the Professor is to educate his pupils so that each may apply his knowledge to his life-work in the future. For this he will teach them to research. They will help him in his own investigations, and these may well have a bearing on the industry of the district. They may commence to solve for themselves simple problems akin to those they will meet with in their future work, but their power and opportunity to apply the new discoveries of science to the manifold problems of industry must be limited. For such work training is required, and full and elaborate equipment; the plant of a technical school laboratory must be designed to serve many purposes all aimed at educating the pupils to apply science, and at teaching them the methods to follow. It is not their work, while still at college, to solve the conundrums of the manufacturer. The research laboratory is necessary if progress is to be made. Abbé realised somewhere about 1876 that British optical instruments had reached the highest possible development unless a radical change could be produced in the optical properties of glass, and the researches of Schott and himself, aided by subsidies from the Bavarian Government, lasted a number of years before the first catalogue of Jena glass was produced. Synthetic indigo was discovered by Von Baeyer about the

year 1880; it was not until some twenty years later that it was put commercially on the market, and in that time it is reported that no less than £1,000,000 was spent by the Badische Anilin-Soda-Fabrik before this desired end was reached.

(To be concluded.)

## ARCHITECTS' AND SURVEYORS' APPROVED SOCIETY.

THE Architects' and Surveyors' Approved Society (National Insurance Act) held its fifth Annual General meeting at the Surveyors' Institution, on Tuesday, December 5, at 6.30.

In the absence of the President, Mr. Ernest Newton, P.R.I.B.A., Mr. A. G. R. Mackenzie, President of the Architectural Association, occupied the chair.

Mr. F. R. Yerbury, the Secretary, having read the notice convening the meeting and the Minutes of the previous meeting which were confirmed, presented the Report of the Committee for the year ended June 30, 1916.

The report showed that the membership of the Society had steadily increased during the year, and that the general success of the Society experienced in previous years, had been maintained. The number of sickness claims paid during the year were fifty-nine, and maternity claims thirty-one. The Society had obtained sanatoria benefit for three members, and had arranged for consultation with a specialist for two other members. About 1,000 members were serving in the army. A number had been discharged on account of wounds and illness, and it had been the practice of this Society to do its utmost to see that they obtained every benefit due to them.

Mr. H. D. Searles-Wood, the Treasurer, presented the accounts, which he said had been issued in printed form, and explained the financial position of the Society as regards its cash transactions during the years 1914 and 1915. These accounts had been audited by the Government auditors and there was very little to be said about them. In addition to the audited accounts, a provisional statement was given, showing the income and expenditure from July 1915 to July 1916. The amounts shown on the receipt side represented almost entirely cash, which had been drawn from the Insurance Commissioners for immediate expenses, and, he said, it must be explained that money is only drawn as required, and it is debited to the Society's account at the Insurance Commissioners. The actual financial position of the Society would not be fully and definitely known until, with all other Societies under the National Insurance Act, the Government Valuation was made, but in the meantime they were quite confident that the result of the valuation would be satisfactory. He would like to take this opportunity of referring to the Benevolent Fund, the accounts for which for the year ended November 1, had just been audited by the Hon. Auditors, Messrs. Turville Brown and F. R. Priest. They showed that the amount of subscriptions received during the year had been £15 14s. 6d., and that the amount of £8 11s. had been expended in grants, so that with a balance brought forward from last year, they had a sum of £91 19s. in hand. They had placed £89 17s. of this in a Post Office War Savings account. Although fortunately the claims on the fund during the year had not been by any means large, it was to be expected, seeing that at least half the members of the Society were in the army. He hoped that subscribers and donors would continue to give their support, as with the present state of affairs they did not know what calls were likely to be made on it in the near future.

In addition to presenting the accounts, Mr. Searles-Wood moved the adoption of a by-law amendment concerning the address of the offices of the Society; full details of the amendment were given on the agenda.

Mr. E. C. P. Monson, in seconding the motion for the adoption of the accounts, said that it ill became him to make any remarks upon the accounts beyond congratulating the Society upon being able to present so satisfactory a report, and he felt sure that while the Society continued to be in such good hands, the present satisfactory state of things would continue. He also seconded the by-law amendment, which was carried unanimously.

In moving the election of the Committee, Mr. Mackenzie remarked that in the first place he must explain the reason for his presence in the Chair. It was one which he was sure they would hear with regret, inasmuch as it was owing to the President's absence through indisposition. Mr. Ernest Newton, who would have been there but for a forced holiday from his very arduous duties at the Ministry of Munitions, had been a great friend to the Society, and they owed him a debt for all he had done and was doing as Trustee. Mr. Newton took the Chair at the meeting last year, owing to the absence of the then President, Mr. Hanson, who was suffering from impaired health, but who, he was glad to say, although ill for a very considerable time, was now recovered. Whilst regretting the circumstances which made him Chairman of this meeting, he was nevertheless glad to have the opportunity of expressing his appreciation of the work the Society was doing in looking after the affairs of members of the architectural and surveying professions, in connection with National Insurance. The thanks of both professions were due to the Committee of Management, who were responsible for carrying on the Society. They could not, he said, show their confidence in the Committee in any better way than by re-electing them to office again for the ensuing year. He was sure he would carry the meeting with him when he proposed the re-election of the Committee, which he now did formally. The names appeared on the agenda, which had already been issued.

Miss Sanderson seconded the election of the Committee, which was duly carried.

Mr. George Corderoy, Chairman of the Committee of Management, in responding to the election of the Committee, said that although the war had taken nearly half the membership of the Society into the army, and had depleted the Committee very considerably, the work of the Society was being carried on, although naturally the attendances at the Committee meetings had been very small. They had to deplore for the first time the death in action of a member of the Committee in the person of the late Lieutenant Philip E. Webb. The charm of his manner was, the outward expression of a kindness of heart and graciousness of disposition which gained him the regard of all who knew him. As a Society, they had suffered a great loss in his death. He not only succeeded his brother, Captain Maurice Webb, as Treasurer, but showed the same devotion to, and interest in, the affairs of the Society as his predecessor had done. How greatly his loss must be felt in his home they could only guess, and they extended their respectful sympathy to Sir Aston Webb and his family in their sore bereavement. He wished particularly to refer to the Benevolent Fund, which was subscribed to by principals in offices where members of the Society were employed. He looked forward to seeing the subscription list very much increased, particularly bearing in mind the fact that the only amount asked from subscribers was half a guinea. Although the calls on the Fund had not been much up to the present, he was afraid that they must face the fact that this would not be the experience in the future.

Mr. G. Reeves proposed and Mr. H. W. Virgo seconded the vote of thanks to the Architectural Association for granting free use of office accommodation, and to the Surveyors' Institution for granting the use of a room for the meeting.

Mr. A. Goddard proposed a vote of thanks to the Chairman, who, having replied, the meeting terminated.

#### TOWN PLANNING OF GREATER LONDON.—IV.

At University College, Professor S. D. Adshhead, M.A., F.R.I.B.A., delivered the fourth of six public lectures on "The Town Planning of London after the War."

In his preceding lecture (which was reported in our issue of last week) Professor Adshhead had dealt with the proposals that have been made for new radial roads leading out of London, and he commenced by making a few remarks as to their general requirements. In his fourth lecture Professor Adshhead did the same as regards circumferential roads.

Normally there is not that density of traffic in a circumferential that there is in a radial road. Probably 80 per cent. of urban traffic moves in a radial direction; still, at the same time, circumferential roads are an essential part of every main-road plan. Circumferential roads are essential not only for the purpose of avoiding crossing the naturally congested centre when journeying between northern and southern or eastern and western sections of a city, but also for providing an immediate connection between contiguous suburbs. It is this characteristic of circumferential roads that tends to convert them into something more than mere traffic ways. Where they connect residential areas they are peculiarly adapted to the requirements of the parkway and boulevard.

The most conspicuous example of an important circumferential road in this country is the Queen's Drive, Liverpool. Here during business hours the road is practically deserted, whilst the radial roads that intersect it are traversed by a continuous stream of traffic. But on fine Saturday and Sunday afternoons this circumferential road becomes crowded with promenaders; and in designing it Mr. Brodie, the engineer, had in mind its peculiar use in this way. As an addition to the recreative amenities of Liverpool, it takes a very important place, and therefore in the design of this type of road care should be taken that as far as possible it be made a very beautiful roadway.

But the requirements of the circumferential road will vary with its distance from the centre of the city. We are all aware of the recreative use that is made of the Grands Boulevards in Paris which intersect the busier parts of that city. Much of their recreative character is inherited, but at the same time there is no doubt that their great popularity and success as promenades is largely due to the fact that they co-relate sections of the city having similar interests.

It might also be claimed that the character of the Parisian boulevards is peculiarly Continental. That is so; but, still, it must be admitted that the circumferential road is naturally adapted to encourage this characteristic.

This, then, is the natural tendency of this type of roadway in the central area; but in the outskirts and between suburbs this recreative tendency converts it into a parkway.

The circumferential road that lies just outside the thickly populated area is a very popular road on Sunday. Take the Wimbledon and Kingston Road. There are trams running along this road, and Sunday is the busiest day, the passengers being mostly people visiting their friends in the adjoining neighbourhood.

There are many sections of good circumferential roads between suburbs around London that to-day cross open country, as, for instance, the Stafford Road between Croydon and Wallington, the Bowes Road, Southgate, or the Wimbledon and Malden Road. It would be an excellent thing if, before these were built over, wide strips, turfed and planted, could be secured on either side of the road.

Then there is the circumferential road that has a radius of some 10 to 15 miles, and which, connecting distant suburbs, for the most part passes through open country. On the London Society's map such a circumferential road is shown. In places it is shown enriched with wide strips of open land to be publicly acquired and controlled.



A circumferential road having such a big radius cannot conceivably be in any sense a processional way; at best, it cannot be more than a continuous country lane, but it can connect together the nature reserves of a city.

The Americans make much of this idea of a continuous parkway around the city, and every city in America has in the forefront of its programme the gradual acquirement of nature reserves and a connecting parkway. London needs such a connecting link. It may be said almost to exist to-day, but its disjointed sections need connecting, and it wants fully recognising and constantly improving.

### THE CONCRETE INSTITUTE.

Conclusion of Presidential Address by Mr. F. E.

Wentworth-Sheilds, M.I.C.E., from last week.

*Relations Between Employer and Workman.*—But even if the workman is scientifically taught his trade, in order that he shall increase his efficiency to the utmost, it is necessary to gain his goodwill, and this perhaps is the most difficult problem of all. A paper full of interest on this subject was read by Sir William Lever at Manchester a month ago. Its author is well known for the large amount of time and thought and money he has spent on the welfare of his workmen, and his remarks are therefore worthy of special attention. He points out that the old idea that labour is merely the paid tool of capital has got to go, and that the attitude of obstinacy and distrust shown by working men towards their employers will not be changed merely by giving them higher wages and better conditions of life. They have shown that under certain circumstances they are capable of high ideals and of great self-sacrifice. This has been remarkably evident in the way they have fought for their country, although many have not as yet applied this spirit of self-sacrifice to the ordinary work of commercial production. This, he thinks, is largely due to the fact that they have been looked upon as machines rather than as human beings. The arrangement under which all profits or losses go to capital is not a healthy one, and ignores the psychology of the workman. He suggests that in every industrial concern there ought to be a ladder from the humblest position to a seat on the board of management, and that both profits and losses should be fairly divided. On both sides there must be give and take. Capital must not expect labour to give up trade unions and the privilege of grumbling for better conditions, and labour must not expect capital to give up control and discipline. In a word, he advocates co-partnership, and deplores the fact that trade unions have opposed it. He regards it not merely as a system for producing high wages and large profits, but as a spirit which will humanise the relations between man and man, and which by combining the democratic with the individualistic attributes of human nature will result not only in higher total earnings, but in greater efficiency, happier life, and improved mental conditions.

*Banking Facilities.*—The provision of capital for new undertakings is a matter in which, perhaps, few of our members can assist, but none the less it is of very great importance to us, since the engineer and architect, generally speaking, control its expenditure, and I need make no apology for alluding to it here. It is far from satisfactory to learn that out of £250,000,000 subscribed in this country to capital issues in 1913, less than £50,000,000 was invested at home. During the war, however, an extraordinary number of new factories have been started, and after it is over we shall probably find that the relative importance of our various industries will have altered somewhat; and we shall be called upon to produce many articles for which we have hitherto been dependent upon foreign countries, and also to sell to new customers. Whether as a nation we shall be able to meet this demand will depend to a large extent upon what facilities can be given for the finding of capital for new ventures. Such capital will be required not only for starting new factories

and business concerns, but also for financing sales to possible customers like the Russians and the Italians, who are accustomed to ask for long periods of credit. The facilities offered by our British banks in the way of providing money for such undertakings have been severely criticised by many authorities, and notably by Messrs. Farrow and Crotch in a little book which they have recently published, called "The Coming Trade War." They compare our modern banks very unfavourably with the so-called German system, and again with the Scotch banks of the eighteenth century, which, they say, did so much to assist the extraordinary commercial and industrial development of that country two hundred years ago. The authors point out that we need a banking system which shall favour not the richest consumers, but the largest employers of labour; which, by giving cash discounts under suitable safeguards, shall enable our merchants and manufacturers to sell in countries where long credit is required, and which shall further assist them with all kinds of information.

In response to such criticism the Board of Trade has appointed a strong committee, with Lord Farrington as chairman, to report on the matter; and they have recommended that a "British Trade Bank" be established under Royal Charter, with a capital of £10,000,000. This bank is not to rival but to supplement the work of our existing banks, and is therefore not to accept deposits at call or short notice. On the other hand, it is to issue credits to British merchants and manufacturers at home and abroad, even accepting risks, when satisfied that the expenditure is likely to be productive. It is to provide capital for extension of plant, or amalgamation of works, or carrying out contracts. It will provide cash in cases where sales are made to foreign buyers who want long credit. Best of all, it is to organise an information bureau, which will collect facts about the status of foreign firms, new business openings, &c., and which will examine industrial projects. This information will be at the disposal not only of its customers, but also of Chambers of Commerce and other banks. While independent of Government control, it is to receive recognition and assistance from all British Embassies and Legations, and to act as agent to the Government in cases where they decide to assist certain "key" industries, which must have public funds to bring them into existence.

Even those who are not financial experts can see a good many difficulties in successfully organising such an institution, but it seems to be agreed that a bank to which the assistance of trade will be a primary object, and the making of safe dividends secondary, is a national need and will make for national economy.

*Industrial Consuls.*—It will be noticed that the report of Lord Farrington's Committee, which has just been quoted, develops a suggestion, which has been made elsewhere, that instead of depending so largely as we do at present on our Consular service for information about foreign markets, we should establish a similar service organised by and for British men of business. It is certainly notorious that our Consular staff in the past has consisted largely of men who, whatever their other qualifications may be, knew little or nothing of commerce. It is also notorious that many of them were unsalaried foreigners, and therefore men without any inducement to encourage British trade. It has been stated that before the war out of 653 unsalaried consular representatives 268, or 45 per cent., were foreigners, and that these included 44 Germans and Austrians. It would certainly seem that, whether employed by the Government or by such an institution as the British Trade Bank, such representatives should be British-born and men with good business training. In this connection it is interesting to note what has been done by the American Bureau of Foreign and Domestic Commerce, a description of which was recently given in an American magazine by Mr. W. C. Redfield, the Secretary of Commerce to the United States. He tells how the Bureau recently secured to a big smelting and refining

company the business of smelting Bolivian tin ores which hitherto had all been treated in Europe. It also succeeded in getting the Spanish tax on American coal withdrawn, with the result that exports to Spain were largely increased. Further, it secured contracts for American firms in Norway, Roumania, and Africa. It has ten commercial attachés in various capitals, all of whom are trained business men, and speak the language of the country in which they live, and spend their whole time in building up American trade. It also engages a large staff of travellers who specialise in certain industries. Before setting out on their journeys these travellers consult the principals of the industry they are to represent as to what they can supply; and while on their journey they communicate constantly with them through the Bureau, obtain samples of what is needed abroad, learn the special difficulties that have to be encountered, find out the methods of their competitors and on their return see the manufacturers at home and give to them all the information they have acquired. It is interesting to note, too, that this Bureau of Commerce not only publishes frequent up-to-date reports, but also owns and manages the American Bureau of Standards, whose magnificent work in industrial research is more or less known to us.

I do not wish to suggest that British manufacturers have been wholly idle in this matter. For instance, the Associated Portland Cement Manufacturers and the British Portland Cement Manufacturers, which together provide about 95 per cent. of the total British export of cement (which in 1913 amounted to 750,000 tons), maintain permanently a representative in South America, where before the war a large market was keenly competed for with Germany. The representative in question is a trained chemist and works manager and good linguist. The same firms also send representatives to Australasia and India, and have organised works in British Columbia, Mexico, and South Africa. Such enterprise is highly commendable, but it is evident that only very large and wealthy firms can manage to keep such an efficient travelling staff, and that if British industries generally are to be enabled to sell their goods steadily new markets must be found for them by some organisation encouraged and assisted by the Government. It must be remembered that the Government is to all intents and purposes a third partner in every business concern. Since the war excess profits have been taxed to the extent of 60 per cent., and even before the war incomes which were mostly derived from commercial profits were heavily taxed. Probably such taxation is just, but in return the Government should see to it that no essential industry lacks capital or a market for its productions.

We have now considered very briefly some of the problems which we shall have to face when war is over, and how they can be solved by the exercise of national economy. We have used the word "economy" not only in the restricted sense of avoiding expenditure, but in its truer and larger sense of establishing the "law of the house," the law under which each man works, not for himself alone, but for the community of which he is a member. We have seen that by using our powers in co-operation, as well as individually, we can do much more than we have in the past to produce those things which are really essential for the health and happiness of the nation and the Empire. We have dwelt on certain lines along which such co-operative efforts may be expected to produce great and beneficent results. We have considered the encouragement of scientific and industrial research, the lessening of our economic dependence on foreign nations, the more liberal use of machinery, the introduction of greater facilities for advancing money, the collection of information about new markets, the closer co-operation between employer and workmen, and, perhaps most important of all, the improvement of our methods of education. All these are matters of vital importance to the nation at this time. Moreover, they are matters in which the Concrete Institute is profoundly

interested. In fact, we may say that it is with the concerns of national economy that we have been occupied during the few years of our existence. Economy is a matter that essentially appeals to us. The Charter of the Institution of Civil Engineers describes its members as those who direct the great sources of power in Nature for the use and convenience of man. The racy American says that the engineer is a man who can do for one dollar what any fool can do for two. Both definitions contain a truth and an ideal which appeals to us all.

A glance at our past year's work will illustrate our interest in economy in the best sense. We have had six General Meetings, at which stimulating and thoughtful papers have been read and discussed. Our Standing and Joint Committees have met regularly to solve such problems as the promotion of research work, the establishment of right relations between architect and engineer, the standardisation of measurements, advice about the methods of executing concrete work, and the correct interpretation of the laws relating to steel-framed buildings. All these matters represent an endeavour to introduce economy in building; and when it is remembered that building is one of our largest industries, and that one-tenth part of the nation's industrial output consists of buildings and engineering structures, it will be realised how important is the work which lies before a Society like ours.

Again, we have seen that the great war has taught us that to be fruitful our economy must include and be inspired by the spirit of co-operation. Our individualism has been a source of immense national strength to us, and I hope we shall never lose it. But we must also cultivate the spirit of mutual service between the State and the civilian, between employer and workman, between one profession and another. Among the members of professions we must include the manufacturers and traders, the captains of industry, from whom we expect great things at this time. The learned professions have been inclined in the past to look down on such men because, they said, their first object was to make profits. But why should it be their first object to make profits? Ruskin long ago pointed out that the merchant's first object should be to provide for his country, and that he should be ready, like a soldier, to die in the attempt to carry out this object if need be. This may sound too good to be true, but I venture to say that it is right, and that we must expect all our merchants and manufacturers to take this view. The best of them have always done so. Our country will not keep the high place she has regained among the nations unless they do.

The war has had cruel and terrible results. There is not one of us who has not felt the sting of its destructive power. But strangely enough this fearful thing has opened our eyes, and has made us see many truths which had become dim. It has shown us a vision of what England and the British Empire can and must attain, and every man and every society of men must bear its part in realising the new ideal. Among those who will help to realise it will, I doubt not, be numbered the Concrete Institute.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The following will be on view at the R.I.B.A. from December 18 to 31:—

A series of drawings of some of the finest examples of Indian architecture of about the fifteenth and sixteenth centuries, measured and drawn during his study tours by Mr. E. C. Henriques, Government of India Scholar in Architecture.

The drawings illustrate the three principal styles of Saracenic architecture in India—identified with the Mogul Dynasty at Agra, in the North; the Ahmed-shahi Dynasty at Ahmedabad and Champanir, in the West; and the Adilshahi Dynasty at Bijapur, in the South. Some Hindoo examples at Rajputana are also included.

## HOUSING AND TOWN PLANNING REQUIREMENTS AFTER THE WAR.\*

By Councillor HARRISON BARROW.

I FIND it very difficult to say anything new on the subject of town planning and housing, which has been so much discussed of recent months, but I hope that I have some suggestions that may be of value. I wish, in the first place, to emphasise the obvious features in the present situation and in what will be the situation when the war is over.

1. That we must not waste money and lives in the future by allowing our great cities to grow in the haphazard and casual way in which they are now growing. We cannot afford the loss of time caused by the congestion of our narrow roads and the inefficient means of communication; and the men returning from the trenches will not consent to live in the slums or in rows of houses crowded together.

2. The second point is that the war has shown our mean stupidity in not spending more money on housing and town planning. No other expenditure would produce a more abundant return than this, yet in the past the Government and local authorities have doled out money in a few paltry millions, and we have been told that it was impossible to find more; that the nation could not afford it. We have now spent £3,000,000,000 on shells and equipment for our Army and Navy, most of which has gone into smoke and been of no economical value. I am not, of course, discussing this expenditure from any other point of view except its economic. The fact is that we have been able to find this vast sum of money without becoming bankrupt, and we only want to think for one moment to realise what stupendous changes in the whole aspect, physical and moral, of our cities and the country might have been made. When the war ends the nation must not be prevented from carrying out such essential schemes by the plea that it cannot afford them. It is true that there will be a heavy burden of debt, but this must be placed on the shoulders of those able to bear it, and the productive capacity of the nation has now so increased that, in a few years time, we ought to recover our position, and we shall recover it if we keep up the scale of wages and employ men on remunerative work, such as the making of well-planned main roads and the building of houses.

Out of the war has arisen a new sense of national service. Men and women have left their homes and their business, regardless of comfort and financial loss, and in many cases sacrificed not only their material possessions, but their lives, in the service of their country. Can we not retain some of that magnificent spirit of self-sacrifice and devotion and apply it to the good government of the cities in which we live? I do not wish to imply that we have not had much devotion in times past, but it is impossible to visit our great cities without seeing signs of apathy and lack of public spirit which are most deplorable in their results.

No book on the subject of town planning has inspired me more than that of Mr. Patrick Geddes' "Cities in Evolution." Cannot our able business men devote rather less time to their own affairs, and rather more to improving the condition of the houses and the environment of those who assist to make their success and their money?

It is a sign of progress that several of the largest manufacturers have realised the necessity of good housing, and have erected villages for their employees. Instances such as Cadbury's, Rowntree's, and Lever's occur to one, and recently in Birmingham Messrs. Dunlop have purchased a large area of land on which they are building houses for their employees on town-planning lines. I hope that other manufacturers will continue to do such work, and also that they will realise the importance of good municipal government. No labour is so bountifully repaid as that on a municipality

if it is undertaken in a creative spirit, and not with the idea of obtaining power and position. You will say that I am wandering away from my subject, which is a just criticism; but nevertheless I am convinced that the basis of our work must be a new spirit and a new devotion, such as I have attempted to outline.

I now approach the actual problem which we have to face.

It is important to realise the serious shortage of houses. Mr. Harold Shawcross tells us that the average number of houses required every year is 100,000. During the past two years the number built has been negligible: call it 10,000 or 20,000, they do not count.

Before the war began there was a shortage of houses; therefore, if the war ends in a few months' time we shall require at least 300,000 houses, and in addition there are 600,000 houses not fit for human habitation which ought to be pulled down. Three hundred thousand houses at ten to the acre would cover 30,000 acres, or fifty square miles; and if the 600,000 insanitary houses were destroyed and replaced, 150 square miles would be covered. It is essential that these square miles should be laid out on town-planning lines.

I have read the report of the Urban Land Inquiry Committee, and the papers of Mr. Aldridge and Mr. Shawcross thereon. The suggestions made are of the nature of compulsory town-planning. I consider that compulsory town-planning is essential; but my impression of their suggestions is that they are too elaborate, and that they will hold up building indefinitely.

It has been well said that the first essential of any scheme is the planning out of the main roads; but from experience of town planning in Birmingham I know that it is impossible to decide on the main roads without very great consideration and a long period of negotiation and conference, and I doubt if it is possible to satisfactorily decide the main roads of a suburb under a period of one or two years, and then only if there are members on the local authority who will push forward the project with energy and ability. On the other hand, it is possible in a comparatively short time to decide on the number of houses to be built per acre on different zones. I propose, therefore, that every town and urban district should be instructed to prepare maps, showing three zones. (Compulsion of some kind would have to be applied by Parliament through the Local Government Board.)

A.—The areas which have been developed for building purposes, where the roads have been constructed, and the land completely laid out for building purposes.

B.—Areas where the land has been partially laid out for building purposes, with roads laid out and partially constructed.

C.—Areas where the land has not been developed for building purposes.

The Local Government Board would examine the plans and give a final decision as to the areas of these zones, and the following maximum densities of building would be allowed in the various districts.

(a) On this area not more than 18 houses to the acre would be allowed.

(b) 15 to the acre.

(c) 12 to the acre.

I am basing these figures and this proposed arrangement on that followed in the East Birmingham town plan, which was for the development of a manufacturing side of the city where there is great variety in the character of the buildings. The proposals were objected to by one agent, but otherwise met with general approval.

It will be urged that 12 is too high a figure for a minimum, but Birmingham experience shows that if less than this figure is fixed it is only with the general consent of the landlords in the district, and I think owners of land where larger houses are being built are generally capable of looking after their own interests, and there will be nothing in the regulations to prevent the number of houses being still further restricted. To meet this view, however, a general instruction should be given that on

\* A Paper read at a meeting of the Town Planning Institute.



all these zones regard should be had to the density of houses in the neighbourhood, and where the density in the neighbourhood is less than 12 the landowners should be consulted and an endeavour made to arrive at an agreement with them for a lower number. I quite realise that complications will arise as to the definition of a house, and as to the building of factories, flats, shops, and also how the acre is to be measured, &c. Taking the last point first I would suggest the adoption of the following clauses in the North Yardley scheme:

17 A.—In this clause dwelling-houses shall mean houses other than flats designed for private occupation only by not more than one family, together with such outbuildings as are reasonably required to be used or engaged therewith. Any other buildings are in this scheme referred to as "special buildings."

B 1.—For the purpose of reckoning the number of dwelling-houses to an acre that may be erected in their district, the authority shall include in the measurement of the acre a depth of 7 yards along the frontage of the land in question where it abuts on any road or roads, whether private roads or highways, repairable by the inhabitants at large, or half the width of the road, whichever is the least, and may also include the whole or any part of any public open space acquired by the authority by gift from the owner of the land in question.

I would also adopt—

17 A. II.—Subject to the provisions of this clause, an acre shall be measured so as to include such land as the authority in each case, having regard to all the circumstances, determine by order to be made under Sub-Clause C II. of this scheme.

C. II. is regulation as to "building land."

17. C. I.—Not more than 20 houses on any one acre, and no dwelling-house shall be built, save with the consent of the local authority, with a less quantity of land as to its site and curtilage than 242 square yards.

Further, I would propose that in the A. and B. zones the building line shall not be less than 30 feet from the centre of the road, and in the C. zone not less than 36 feet.

The East Birmingham scheme clause reads:

7. C.—"The Corporation may determine the building line when any plan for any building in such a street is submitted to them for approval, provided that such building line shall not be less than 36 feet or except by agreement more than 41 feet from the centre of the road."

I should have proposed a universal distance of 36 feet if it had not been for the suggestion in the Urban Land Inquiry, that the distance between houses on opposite sides of a road should be only 50 feet, which I cannot understand: with an ordinary 42 feet road it only means that the building line is set back 4 feet on each side. It may be urged that 72 feet is too wide for a street of shops. If a street is a shopping street it must be fairly important, and probably 72 feet is not too wide, but I suggest later on the possibility of local authorities having discretionary powers as to the building line in the case of shops, factories, &c.

There are other clauses in the East Birmingham and North Yardley plan which might be universally adopted. (I ought to explain that the North Yardley clauses have not yet been approved by the Local Government Board.)

Breaks in buildings, 18 North Yardley scheme.

"Without the sanction of the authority not more than eight buildings shall in any place be built under one continuous roof, or without an interval of at least 6 feet in width, such interval to continue throughout the whole height and depth of the building. Provided that the authority may, if they think fit, allow a block of not more than five dwelling-houses, which expression shall include a single dwelling-house or a pair of dwelling-houses, to be built with an interval of less than 4 feet in width. No part of any continuous block of more dwelling-houses than four shall be built nearer to the owner's boundary than 3 feet, except when such boundary abuts upon land not built upon or not likely to be built upon,

and when the written consent of the authority in question has first been obtained."

Clause 18 in the East Birmingham scheme is similar, but the North Yardley scheme obviates several difficulties. If it is possible, discretionary powers might be given, such as in North Yardley, for building lines for shops, factories, and falling sites, or for architectural effect.

The Local Government Board object to giving discretion to local authorities, but I see no reason for their objection, especially if it could be confined to towns of say 50,000 inhabitants. In any case the architectural clause should be inserted.

I am extremely anxious to keep this preliminary scheme as simple as possible, and am therefore a little afraid of any addition liable to complicate it, but I see no reason why arrangements should not be made for securing land for widening the most important main roads. I therefore propose that towns should be encouraged (I do not think that compulsion could be applied in this case) to include in their preliminary scheme plans for the widening of all main radial roads which are now, or obviously will be, required in the near future for tramway purposes or for omnibus routes. This would not apply to roads the frontages to which are fully built up. Such scheme of widening would merely secure in the future sufficient land to enable the roads to be widened (to at least 80 feet), and not to necessitate any expenditure on the carrying out of any works until they are actually required.

In the North Yardley scheme the authorities may sanction the erection of a group of buildings which, for the production of an architectural effect, shows the frontage of such building partly in front and partly behind the building line, provided that the frontage is not at any point more than 5 feet in front of the building line, and the portion of the frontage behind the building line is so designed as to give an unbuilt area at least equivalent to that taken by the portion of the buildings in front of the building line.

Of course I cannot attempt in such a paper as this to cover all the details which would have to be considered. If the Institute think anything of them a committee would have to be formed to consult with the Local Government Board and to frame a Bill. If these suggestions were adopted, we should mark an immense advance in all non-planned districts: the number of houses to the acre would be only twelve in the undeveloped areas, and the space between the houses would be 72 feet. They are not suggested as in any way taking the place of a complete plan, quite the reverse: every effort must be made to urge local authorities to plan all their main roads at the earliest possible date, to decide their manufacturing areas, their residential districts, &c., when the main roads are planned and the arrangements for contributions from the landowners are completed; then it will be possible to arrange for roads with a narrow macadamised portion, such as those shown in the B sheet of the East Birmingham plan.

Mr. Walter Long said on October 31, in reply to the deputation representing the conferences of local authorities which have been held to formulate schemes for the construction of arterial roads in Greater London, that he should consider it his duty to advise the Government that their first call upon public funds ought to be for the provision of housing of our people, and for sanitation and water supply. I submit that the proposals I have made will not entail any expenditure, or very trifling, and that it would be a great misfortune if the large number of houses required to be built after the war were allowed to be erected without some restrictions as to their density and position.

Mr. Walter Long's reply in regard to the arterial roads in London was not absolutely negative, and he promised to endeavour to preserve the suggested routes from further obstructive buildings, and said that Sir George Gibb should consider the proposals. The work of the conferences has occupied, I believe, about three years, and this fact shows what care and consideration is necessary before any such scheme can be evolved. I would

therefore most strongly urge that a similar series of conferences should be held in the provinces, even now in war-time, to consider the main arterial roads.

Mr. Patrick Goddes, in the book which I have already mentioned, "Cities in Evolution," suggests that the main roads of the country should be divided into seven areas, to be called:—

- 1.—Lancaster: Liverpool, Manchester, &c.
- 2.—West Riding: Halifax, Bradford, Leeds.
- 3.—South Riding: Sheffield.
- 4.—Midland: Birmingham, Coventry, Kidderminster, &c.
- 5.—Waleston: South Wales.
- 6.—Tyne: Wear and Tees.
- 7.—Greater London.

I understand that as regards No. 7 much of the preliminary work has been done, and as regards 1 and 6 a good deal of work is being done. The representatives of these three districts deserve great credit for their pioneer work. It ought not to require a large number of local representatives to attend such conferences, and it should be possible, now that estate development is at a standstill, to find a competent surveyor to assist in each area with, of course, a staff of assistants under him. As a matter of fact, I understand that the Civic Survey Committee of the R.I.B.A. have a number of architects, &c., over military age who are skilled in this work, and whose services should be made use of.

As chairman of the Birmingham Tramways Committee, I am particularly interested in the possibilities of the extension of tramways and light railways for intercommunication between towns and districts, not only for passenger traffic, but also for goods. The success of such schemes depends largely upon securing wide roads and laying the tram rails on sleeper tracks by the side or in the middle of the road. The saving of paving between the tracks is about £3,000 per mile, and the cost of the land required at £100 per acre would only be £300. In addition, there would be saving in the cost of maintenance, and the running expenses would be lessened on account of the greater speed at which cars would be run. I mention this to show the importance of wide roads connecting centres of population. The tramways and light railways would also traverse country areas, and much might be done in carrying vegetables and fruit, &c., into the towns and carrying out manure to the country districts. In Birmingham, on our ordinary tramway system, the department is carrying about 80,000 tons per annum at a pre-war cost of 2½d. per ton per mile.

There is a theory in some quarters that towns should not run trams outside their borders, as they are thereby developing roads outside their own areas. This is a false view to take, as more efficient intercommunication makes for progress, and the most profitable arrangement, from a rating point of view, would be to have all the factories in a town and the houses of the workpeople outside. But whether the particular town benefits or not does not matter; we have had too much of such parochial selfishness, and must do that which is best for the nation as a whole.

The question has been raised as to who should pay for this extra width required for tramway purposes. I think that it is clear that the tramway authority should pay for this, and it will probably be necessary to have a joint committee representing various local authorities to work the tramways connecting several towns. This question, however, does not come within the limits of this paper, but requires to be mentioned to complete the proposal.

My last consideration is that of housing. It seems unlikely that builders will be anxious to erect houses after the war is over. The fact that rents have not been raised, and that new houses will have to be let at a much higher rent if they are to pay, will not conduce to building. Nevertheless, the houses must be built if we are to develop a healthy race and raise the general standard of civilisation.

A special committee was appointed some years ago to inquire into the housing conditions of Birmingham. This committee recommended the City Council to develop estates in the suburbs—that is, to make the roads, lay sewers, &c., and then let the developed estates to builders at a figure to cover interest and sinking fund. The idea of this suggestion was that the builders would be saved having to invest large capital sums in laying out estates. Owing to the war, nothing has been done in carrying out this proposal.

Sir W. H. Lever has suggested that the municipalities should go further, and that they should develop estates and then hand them over, free of cost, to builders. Apparently there is to be no guarantee that the tenants are to profit by the gift, which the landlords will be able to appropriate, and charge the tenants with the full commercial value of the house, land, roads, and other costs of development. With all respect to Sir W. H. Lever, the scheme is absurd; there is no object in making gifts to landlords in this fashion. Surely, if the town is in such straits to get houses built, the proper course would be for the municipality to build its own houses and get the benefit of the land and development values.

We know what has been done in Germany as to purchasing land in the suburbs of towns, and then running out tramways to them to increase the value of the land. If cities here were to follow this example, then develop the land as suggested and sell it to holders, or to co-partnership societies, building societies, &c., much progress might be made. The municipality might further advance a considerable proportion of the cost of the houses to the societies. If it is impossible to obtain houses by these means, the municipality must build itself, and there is no reason why it should not do so successfully.

Municipal housing schemes have usually been to accommodate the poorest people in the centre of our towns, an impossible proposition on an economic basis. I hope municipalities will not attempt such schemes in future, but provide accommodation for the artisans in the suburbs in good houses built on town-planned estates. That is, if private enterprise does not find the accommodation required. There are plenty of slums and cheap houses in the centre of our large cities, and what is required is not such houses, but good houses in the suburban areas. Wages must be raised, or kept up to their present standard, to enable the working men to live in houses of such a character and pay a sufficient rent to cover all cost to the municipality.

### ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.

The annual general meeting of the Royal Institute of the Architects of Ireland was held at 31 South Frederick Street, Dublin, on Thursday, the 7th inst. The President, Mr. R. Caulfeild Orpen, R.H.A., occupied the chair, and there were also present:—

Messrs. C. J. MacCarthy, P. J. Lynch, H. J. Lundy, W. G. Clayton, E. Bradbury, C. A. Owen, Lucius O'Callaghan, W. Kaye-Parry, E. H. Morris, H. Allberry, A. E. Murray, G. F. Beckett, J. M. Mitchell, J. H. Webb, and Frederick Hayes, hon. secretary.

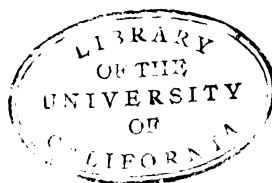
The annual report of the Council for 1916 was submitted by the hon. secretary, and was adopted. The statement of accounts shows the Institute in a strong financial position.

Mr. William Kaye-Parry, B.E., F.R.I.B.A., was elected President for the ensuing three years, and Mr. Charles Astley Owen, B.A., F.R.I.B.A., as Vice-President.

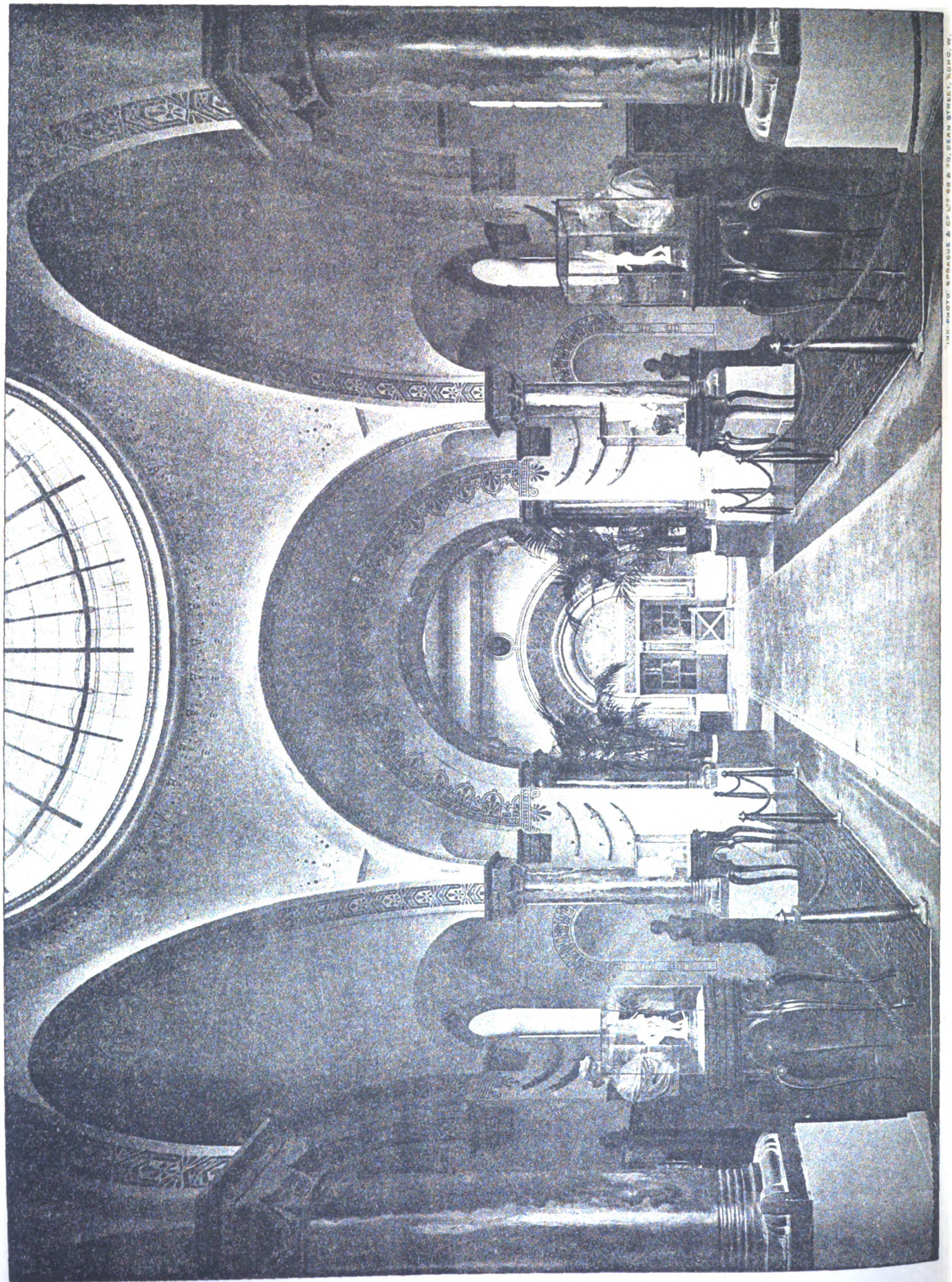
The following were elected on the Council for the year 1917:—H. Allberry, R. H. Byrne, F. G. Hicks, A. Hill, A. G. C. Millar, G. L. O'Connor, W. A. Scott, G. P. Sheridan, and J. H. Webb. Messrs. E. Bradbury and L. E. H. Deane were elected hon. auditors.

Mr. George O'Neill, Bangor, was elected a member of the Institute.

1. The first part of the paper is devoted to the study of the properties of the function  $f(x)$  defined by the equation







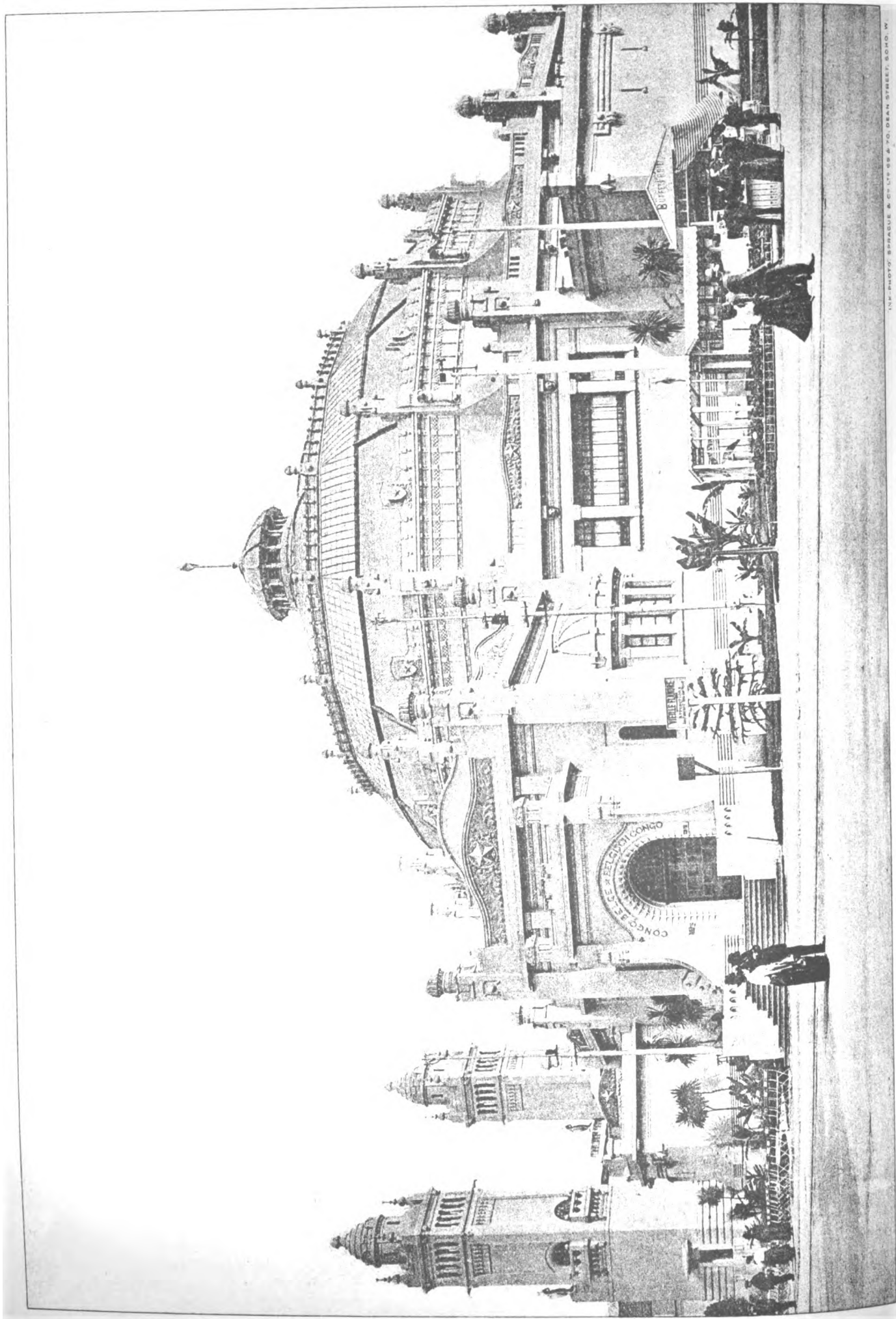
(Royal Scottish Academy, 1916)

PALACE OF THE MINISTRY FOR THE COLONIES, GHENT EXHIBITION, 1913.

(The Photo: BRAGUE & CO. 68 & 70, DEAN STREET, LONDON, W.)







NEW PHOTOGRAPH BY BRADY & CO. 117-119 & 121, DEAN STREET, BOND ST. W.

PALACE OF THE MINISTRY FOR THE COLONIES, GHENT EXHIBITION, 1913.

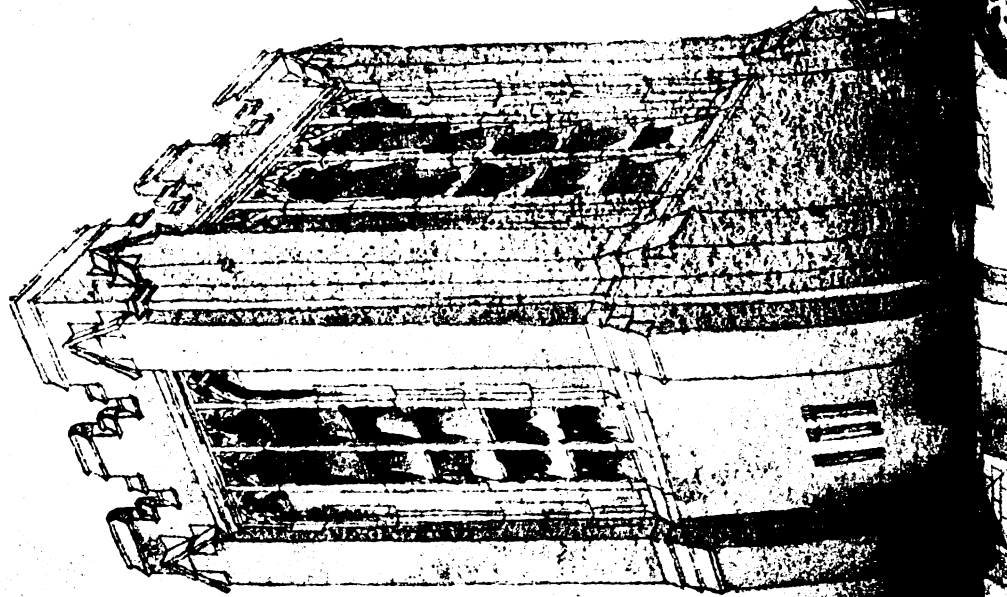
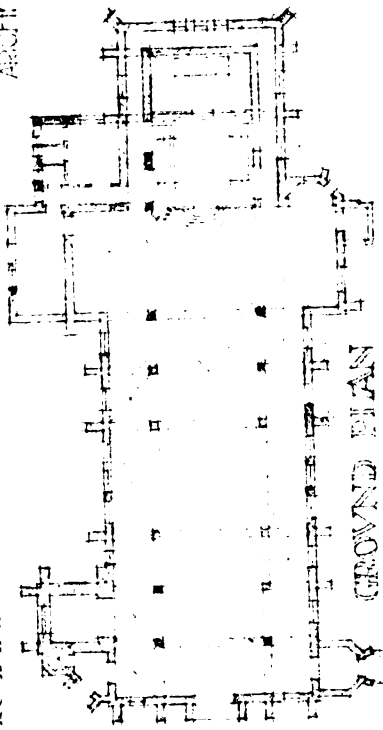
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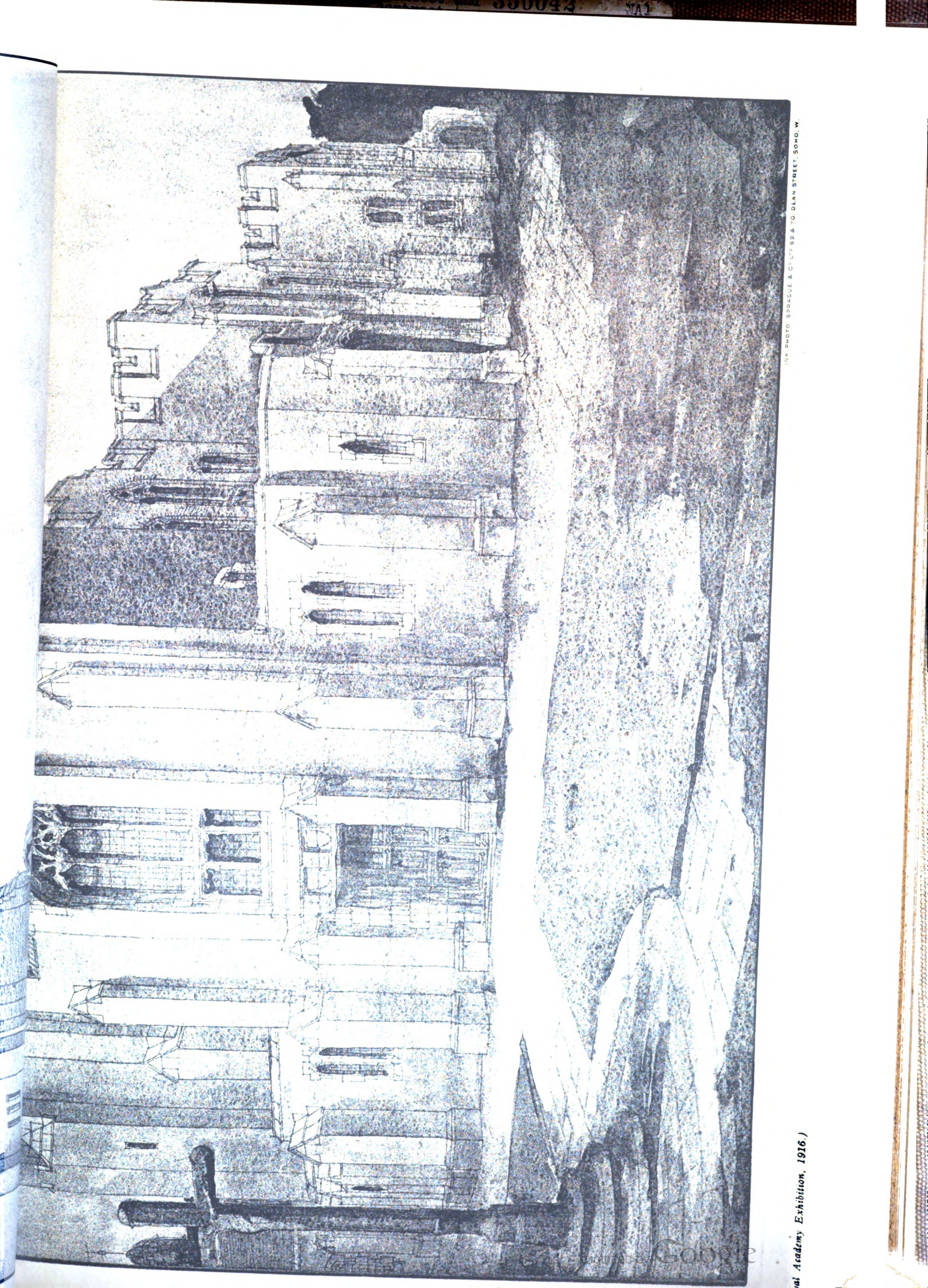


The Architect, Dec 15th 1916.

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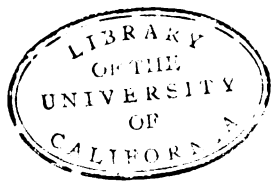


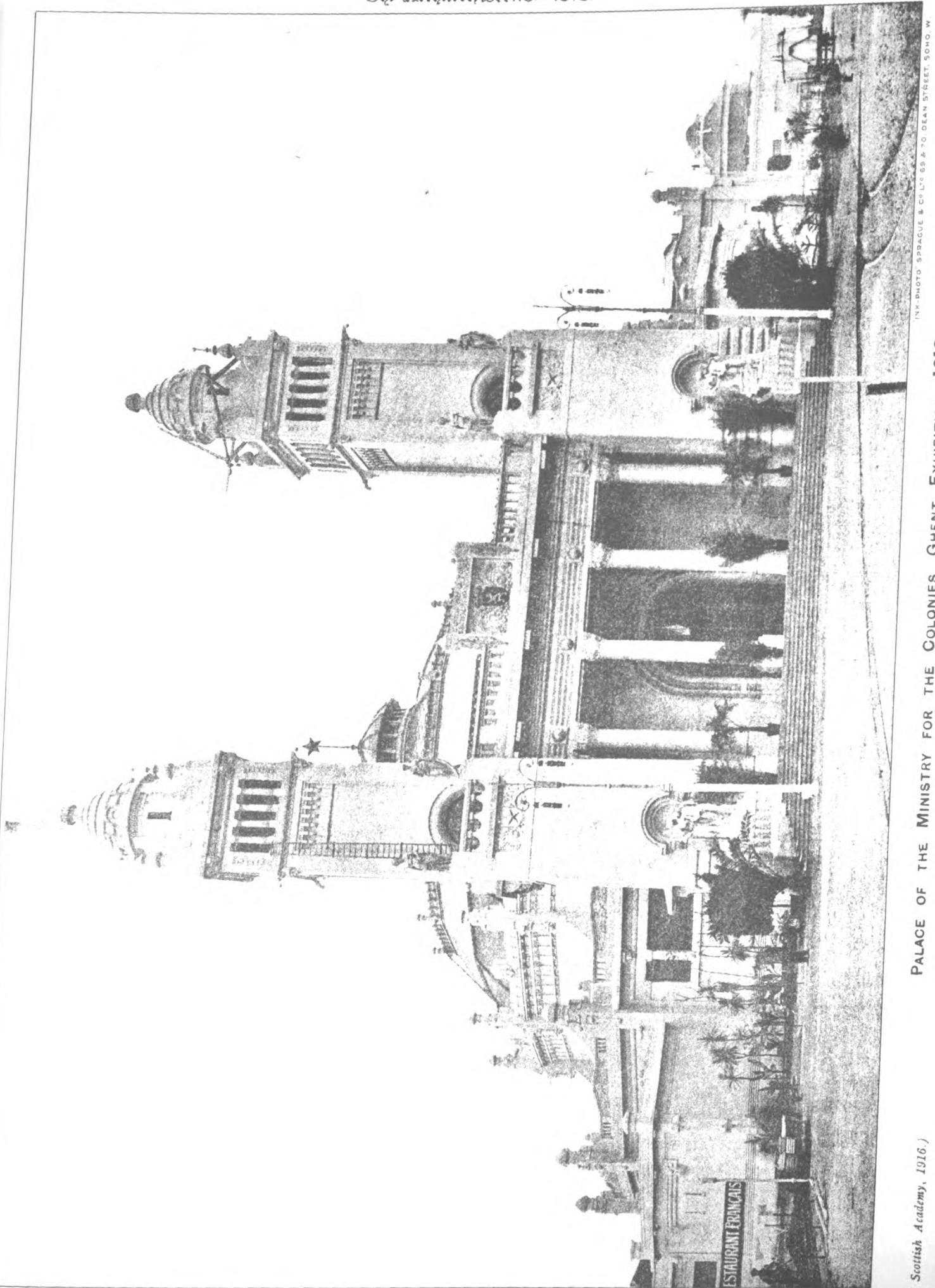




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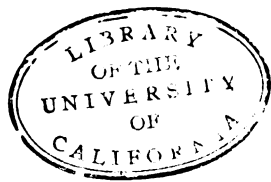




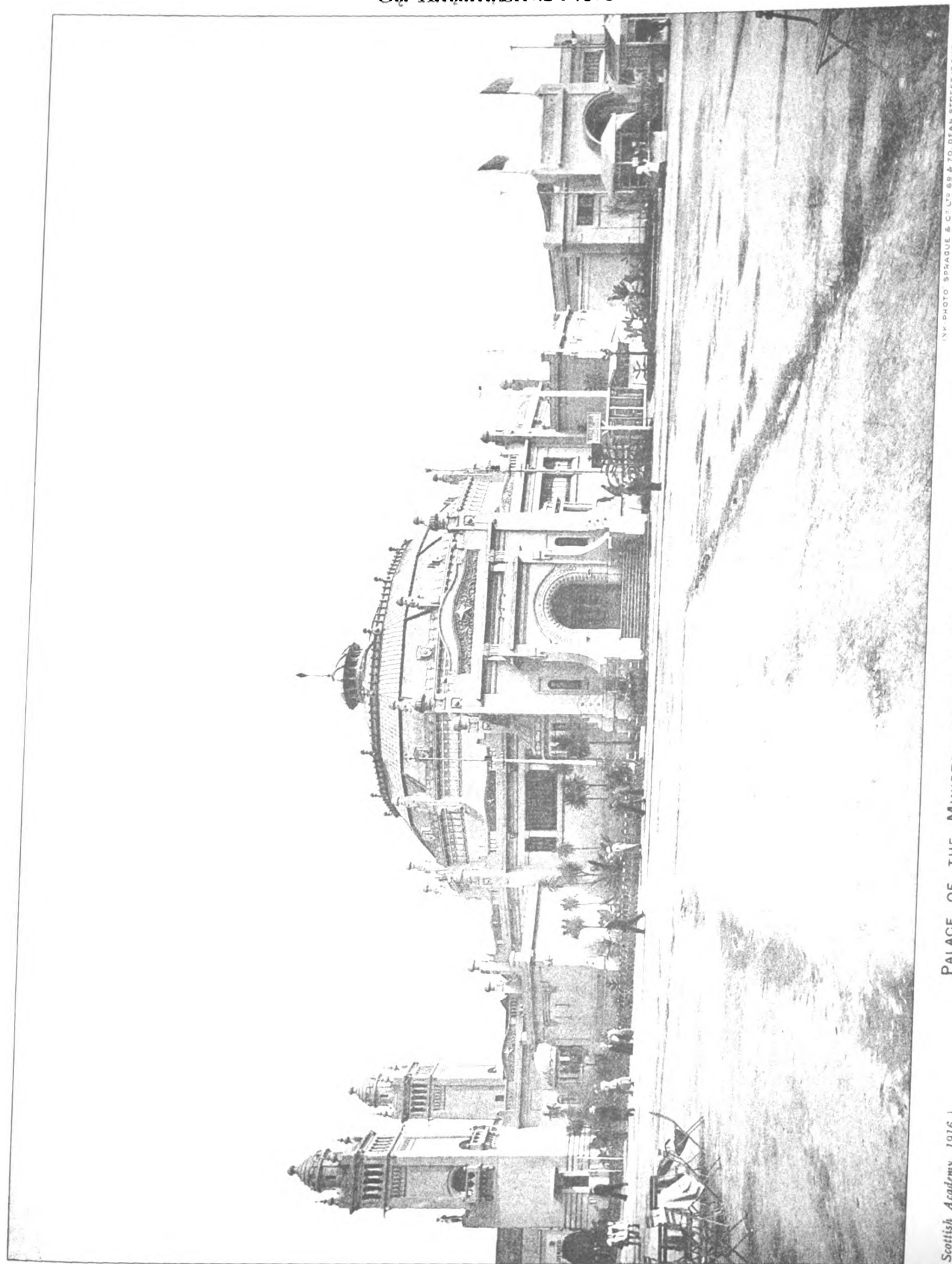


PALACE OF THE MINISTRY FOR THE COLONIES, GHENT EXHIBITION, 1913.  
M. JEAN JOSEPH CALUWAERS, Architect.

(Royal Scottish Academy, 1916.)



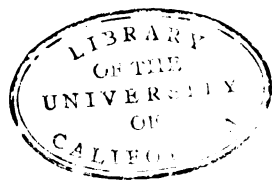




(Royal Scottish Academy, 1916.)

PALACE OF THE MINISTRY FOR THE COLONIES, GHENT EXHIBITION, 1913.  
M. JEAN JOSEPH CALUWAERS, Architect.

(NY PHOTO SPRAGUE & CO. L.P. 69 & 70 DEAN STREET, SOHO, W.)



## ART IN LONDON.

## TRIPLE BILL AT THE FINE ART SOCIETY GALLERIES.

AMIDST oil and water-colours and coloured woodcuts it should be easy to satisfy the general public requirements. But for the moment, let us see how the Art-critic's requirements are met. The late Lieutenant Stuart Boyd is one of the (we will not say "victims" but rather) heroes of the Titan struggle in progress. Ere war was dreamt of by him he was contemplating an exhibition of his works, and now in these days of storm and stress, when the artist has passed over to the Elysian fields, the belated exhibition takes place. The work is naturally of varying value, but the two most deserving of notice are "The Village Secretary" and "A Spanish Village Council"; in the former the secretary's figure is well-modelled, and the general details are subordinated satisfactorily; the latter is a good piece of composition with plenty of pleasing characterisation, whilst the focalised lamp-light is effective. "The Ephemeral and the Everlasting" is capable work in a modern style of technique.

Landscapes are always the better by being provided with some form of animal life, but in the greater portion of Mr. Boyd's exhibits (which consist of pictures of Majorca) this is conspicuously absent. And some of his work is patchy and even very patchy, but "The Hillside Approach," "The British Resident," "The Remittance Man," "The Tower of Refuge" and "Es Carré" are amongst the better examples.

Miss Grace White's water-colours are not rendered more attractive by the letter-press accompanying them—but that is, perhaps, a detail; indeed, the words being often the more attractive militate more strongly against the brush-work; the two should, of course, be in perfect accord. Much of Miss White's technique displays a certain crudity and a woolliness—but there are exceptions such as "Marshland" in its breadth, atmosphere and tonality, and No. 13, which ranks not only first in the collection, but is, irrespective of that, a perfect work of art. No. 9, with its far-fetched quotation as to a tree amongst our far progenitors—well, let us observe that monkeys would be preferable ancestry to such trees as here shown.

Mr. C. W. Bartlett's twelve coloured woodcuts of India and Japan are most sympathetically rendered à la Japon; there is the true Japanese timbre, "Negishi" and "Agra" being the most attractive; the decorative value of these twelve woodcuts is very high.

## IN THE BELGIAN FIRING-LINE.

M. MARC-HENRY MEUNIER's prefatory letter to his friend, M. Eugène Ysaye, is well worthy perusal, and is a very apt introduction to this small exhibit of paintings and drawings at the Leicester Galleries. The desolation of war is made so manifest and the ruthless Juggernaut of militarism is displayed in all its abhorrent capacity of defacement of Nature, of Industry and of Progress. Some of the artist's work stands out pre-eminent: Nos. 1, 10, 11 and 32; the two latter are the same subject (one being an original etching), and other prominently good work is to be seen in Nos. 7, 15, 24 and 31. Royal taste in art is not always conspicuously good, but H.M. the Queen of the Belgians has established her claim by her selections of sketches. No. 15, "A Ruined Stable, Nieucapelle," forms a picture, even amidst the devastation caused by dread artillery; and No. 10, "Second-line Trenches at Osoletteren—Ypres Road," is a particularly fine drawing, realistic and transportive. Some of the work is crude and some not fully descriptive, but the exhibition as a whole is interesting and instructive.

## THE ARCHITECTURAL ASSOCIATION.

AN ordinary general meeting of the Architectural Association was held at No. 37 Great Smith Street, Westminster, S.W., on Monday, December 4, at 4.15 P.M. Mr. A. G. R. Mackenzie (President) in the chair.

The Secretary having read the minutes of the previous meeting, which were confirmed, the following nomination for membership was made: Mr. E. C. Gentry.

The Chairman then announced the election of the following gentlemen to membership: Messrs. P. R. Udwardia, A. H. Basto, Rowland Tillett, C. E. Cat, C. M. Master, and E. B. Morley.

The Chairman announced the Council's nominations for hon. treasurer and ordinary member of Council, to fill the present vacancies: Hon. treasurer, Mr. Horace Farquharson; ordinary member, Mr. G. Gilbert Scott. As there were no further nominations forthcoming, they were declared elected.

The meeting then terminated.

## LABOUR PROBLEMS.\*

By Sir MAURICE FITZMAURICE, C.M.G., M.A., M.A.L., LL.D.

THE difficulties which have arisen between employers and employed in recent years have had a good deal to do with the success, or otherwise, of engineering works. During the period of the war it has been extremely satisfactory to find that many of these troubles have been shelved for the time being. The temporary truce has, however, in some cases not been carried out so far as one would wish and expect, bearing in mind the serious struggle in which we are engaged, and considering that everyone should bear some share of the loss and discomfort which war entails. We can, however, never forget the great part played by labour and labour leaders in this war, and we must remember that nearly all labour troubles which have arisen have been in direct opposition to the wish and advice of the trade union officials.

It is, however, with reference to the relations between employer and employed during times of peace with which I am most concerned to-night.

I had for many years the direct control of a large body of working men, and have had opportunities of inside knowledge with reference to many labour disputes with which I had no direct connection. The two points which struck me as fundamental in nearly every case were that the employer should pay a good living wage, and that the employed should do a good honest day's work, or perhaps I should say in some cases an honest week's work. The so-called "restriction of output" policy, which some trades indulge in, seems to be the first step in a most vicious circle. It certainly does not lead the employer to look favourably on proposals for increase of wages. It must be extremely irritating for him to know that the output per man could be easily increased in some cases, without undue exertion, and that under such conditions he could cheerfully concede an increase in wages. This policy is not confined to our own islands only.

I had an opportunity, some time ago, of discussing the question with one who had full knowledge of labour conditions in a certain State, and he informed me that, during ten years, wages in his area had gone up 40 per cent. and the output per man had gone down 30 per cent. The general conditions no doubt justified the increase of wages, but there seemed to be no reason for the diminution of output.

We all wish to see labour contented. In Burke's speech in 1775 on conciliation with America, he said, "The question with me is not whether you have a right to render your people miserable, but whether it is not your interest to make them happy." I think that expresses our view with regard to labour to-day.

MR. EDWIN JOHN BURNAND, builder and contractor, of Wallington, who died on April 22, left property valued at £15,360.

\* Extract from the Presidential Address read before the Institution of Civil Engineers. Digitized by Google



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G. W. Rly., Paddington Station, W.  
December, 1916.

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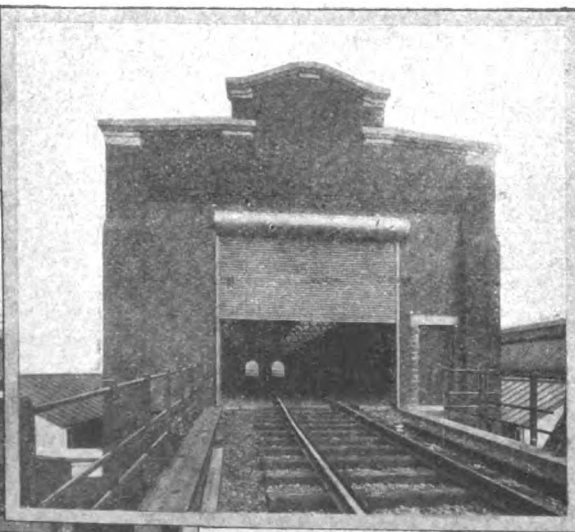
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It is impossible to expect a high standard of duty to exist at all times among workmen unless they can live under such conditions as will allow them a chance of bringing up their families decently and making some adequate provision for old age. I am quite aware of the advantages as regards free education, medical attendance, out-of-work benefits, old-age pensions, and sometimes free meals for children, which exist; but better wages than those existing before the war, with a greater feeling of responsibility by the individual would, in my opinion, be much better than all these free advantages, with the exception of that of education. Organised labour has great powers and correspondingly great obligations, and it ought to be in a position to begin these obligations at home. If obligations and responsibilities do not exist in the elementary matters, there is very little chance of their real existence when large questions have to be solved.

It is often difficult for the mass of labour to understand the cost of finding large sums of money to finance great industries, and that such money has to be paid for out of profits. It is difficult for labour to realise the risks which capitalists have to take, and the fact that in many works large sums are spent on research work which may only give a return after a long period, or may in many cases appear to give no return if it be considered that negative results have no value, which is far from being the case. It is also sometimes difficult for labour to understand that the work and organisation of one man may in some undertakings mean a difference in profits of hundreds of thousands of pounds, or the difference between success and failure, and that such men and their immediate assistants deserve and earn the large sums they receive. It is on these accounts that labour often considers that it does not get a fair share of the profits. I do not mean to say the profits are always fairly divided, and it would be difficult to say what a fair division should be.

I also do not believe the working man has any idea how the prosperity of this country, and with it his own prosperity, depends on our export trade, or how our manufacturers have had to meet the fiercest and sometimes unfair competition of other nations, not only in foreign countries, but in our own overseas Dominions. There is, however, nothing surprising in this want of knowledge when we remember that very few of us realised a few years ago how Great Britain was exploited by German competition, frequently underhand and unfair, with the object of capturing our vital industries and getting control of a great deal of our finance and trade. We have, however, learned a great deal in the last two years, and I think many working men are not above taking interest in such questions.

How is it possible to permanently raise the wages of the working man beyond those existing before the war? Is it reasonable to expect that a greatly-increased output per man can be obtained without undue exertion? We all know it is possible. It means that employers must provide the best modern machinery, and that men and trade unions must give up the idea of restricting output. It means that capital has to obtain such a measure of the confidence of labour as is necessary to convert men and trade union officials to the view that increased efficiency will be to their great advantage and give increased comfort and health. This can only be done when it can be shown that under such conditions there will be plenty of work to go round for all, and it means that our trade has to be increased.

CARL P. JENNEWAIN, a naturalised American citizen, but born in Germany, was the prize winner in sculpture in the recent competition held by the American Academy in Rome. Owing to his German birth, Mr. Jennewain was unable to obtain a passport. Through intercession with the Italian Government, Mr. Jennewain is now informed that it has consented to guarantee safe conduct and residence in Rome during the remainder of the war.

## ARCHITECTURE IN RELATION TO HEALTH AND WELFARE.

On Thursday, December 7, Mr. Paul Waterhouse, M.A., F.R.I.B.A., delivered his second Chadwick Lecture on "Architecture in Relation to Health and Welfare." The special heading was "The Growth and Overgrowth of Towns." The lecturer, whose remarks were illustrated with lantern slides, opened by pointing out that nearly all large cities were the result of the expansion or agglomeration of original small towns; consequently, since the requirements of a large modern city are essentially different from those of a small mediæval town or primitive hamlet it could only be by a sort of accident that any modern town of large size fulfilled the requirements of its many inhabitants. Tracing the normal historical growth of a village or town, and explaining the extent to which roads acted both as cause and effect in town development, Mr. Waterhouse illustrated his line of argument by special reference to London—of which he exhibited plans. He proceeded to make allusion to the possibilities of improvement by drastic remodelling, and gave as an example the plans prepared by Evelyn and Wren for the re-formation of Central London after the Great Fire. Showing a slide of Wren's scheme as applied to London to-day, he criticised the faults into which even a man of Wren's foresight could fall through insufficient prescience of the coming needs and growing greatness of the Metropolis.

The lecturer dwelt upon certain main principles of plan which should dominate the remodelling of congested cities of large size, and made his lecture in a general sense preparative to his address on the London of the Future, which was given at the Surveyors' Institution on December 14.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

### Mr. Joseph Pennell at Munition Works.

SIR,—While I agree with Whistler and with yourself, that works of art should explain themselves—and I think mine do—in the case of these Munition Drawings I thought it well, and have done so previously, either to explain the sequence of processes or my reasons for making the drawings. Such facts the drawings do not give and are not intended to give. Besides, such subjects are unfamiliar and there is no use confounding the elect when you can in a paragraph enlighten or infuriate them. I have done both in this catalogue of the exhibition. But, Sir, I did not expect you to question my sincerity. Does not your attitude weaken your most amiable article on my show at the Guildhall?

When you say "Does Mr. Pennell really believe what he says?" as when he says "smoke gives the sky a beauty it never had before"—that "the lines of chimneys are finer than the lines of trees" that "no cathedral interior is more impressive than some rolling mills," and so on, certainly Mr. Pennell does believe it, or he would not have said so, and if it is regrettable to be found guilty of enthusiasm over these grand subjects, I am most guilty—and I hope I always shall be. I do object to being found guilty of affectation. However, I hope I am enthusiastic, though it is a crime—I hope I am not affected, though that be a virtue. And finally, Mr. Editor, I am glad I have interested you in my show at the Guildhall.—Yours, &c.,

JOSEPH PENNELL.

London: December 12, 1916.

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**The Government, the Profession, and the Trade.**

SIR,—Your Journal is, of course, non-political, and would I feel sure bar any letter of a political nature, but the passing of the late Government unhonoured and unwept, and the incoming of the new, emboldens me in addressing myself to your readers. The hard restrictions placed upon the building trades may now be perhaps not entirely withdrawn, but reasonably adjusted, and we may surely be hopeful that the profession and the trade which your Journal so worthily represents, can anticipate next year some improvement in the prospects of this industry. Then again, there are many fully capable men over military age whose services the Government Departments might, with great advantage, make use of. Take for example the laying out of camps, erection of huts and temporary buildings. Much money has been fruitlessly thrown away because the men engaged in this class of work have been thoroughly inexperienced men, totally incapable of carrying out the work, and utterly at sea even in the choice of a site. Had a local architect with a local builder been engaged, time, money and health might have been saved. Much has been written on the subject of a business Government. We seem at last to have one, at any rate let us hope so. I personally know of good capable men able to do the work I have made reference to, and who would be only too thankful to obtain such employment, and have a suspicion that you may doubtless be aware of many others, men who will not go to or enter their names at a Labour Exchange. Men who would not require large remuneration, but who would gladly place their knowledge and skill at the disposal of their country, at a remuneration which in normal times they would have indignantly refused. I trust that your late correspondent will not deem this letter of mine to be any more senseless than his own communication, although of course he may possibly consider my letter just as stupid and uncalled for as I consider his. May I trespass further on your space to give a quotation?

"'Tis nice to see one's name in print,  
A book's a book though nothing in't."

As I am like him, and do not care for my name to appear, I prefer to annex your recent correspondent's nom de plumie of

London: Dec. 11, 1916.

W.P.B.  
(No. 2.)

## BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### DURHAM.

*Blackmill*.—Proposed Baptist church.

*Sunderland*.—Backhouse's Bank, High Street: alterations. Messrs. W. & T. R. Milburn, F.F.R.I.B.A., architects, 19 Fawcett Street.

##### ESSEX.

*Braintree*.—Foundry: extension for Messrs. Lake & Elliot.

Works: extension for the Crittall Manufacturing Company.

##### KENT.

*Maidstone*.—Springfield Mill: addition.

##### LANCASHIRE.

*Bury*.—The Guardian Angel's Catholic (new) church, Elton.

*Manchester*.—St. Mary's Hospital, Oxford Road, Chorlton-upon-Medlock: additions.

##### MIDDLESEX.

*Finchley*.—Council school, Woodhouse Lane.

*Willesden*.—Premises, Temple Road, Cricklewood, for Messrs. Newport (England), Ltd.

No. 7 High Street, Harlesden: alterations for Mr. C. Bastable.

Workshops, Hawthorne Road, Willesden Green, for the British Ensign Motors, Ltd.

##### NORTHUMBERLAND.

*Belford*.—Motor house, Seahouses, for Mrs. Rutherford.

##### SURREY.

*Epsom*.—Proposed soldiers' institute, Ashley Road, for the Wesleyan Army and Navy Board.

*Woking*.—Servants' Orphanage: war memorial addition (£3,000).

##### WARWICKSHIRE.

*Coventry*.—All Saints' (proposed new) church (£7,000).

"Railway" Hotel, Warwick Road: extensions for Messrs. Mitchell & Butlers, Ltd.

"Oakley," Earlsdon Avenue: motor house, &c., extension for Mr. G. Tansley.

Five houses, Kingsland Avenue, for Mr. H. Davis.

Four houses, Queensland Avenue, for Mr. C. E. Needham.

Eight houses, Collingwood Road, for Mr. J. G. Hewlett.

Eight houses, Holmfield Road, for Messrs. Jervis Brothers.

Six houses, St. George's Road, for Mr. B. Gilbert. Offices, &c., Spon End, for the Coventry Chain Company, Ltd.

Carpenter's shop, Parkside: extension for the Siddeley-Deasy Motor Car Company, Ltd.

Kingfields Works, Cash's Lane: finishing-machine shop for Messrs. J. & J. Cash, Ltd.

Works engineering offices, Sandy Lane: additional storey for the Daimler Company, Ltd.

Exchange Works, West Orchard: extension for the M.L. Magneto Syndicate, Ltd.

No. 49 Earl Street: workshop, &c., for Mr. W. I. Iliffe.

##### YORKSHIRE.

*Castleford*.—St. John the Baptist, Lock Lane: proposed alterations.

*Halifax*.—Premises, Gibbet Street, for Messrs. J. Butler & Co.

*Hull*.—Premises, Stoneferry: additions for Messrs. J. & T. Earle, Ltd.

*Saddleworth*.—Spring Mill, Uppermill: extensions for Messrs. J. Bailey & Sons.

#### SCOTLAND.

*Aberdeen*.—House, Clifton Road. Mr. George Watt, F.R.I.B.A., architect, 17 Union Terrace. Messrs. J. Shirras & Son, builders.

*Dundee*.—House, Small's Lane: alterations for Messrs. W. Bayne & Son.

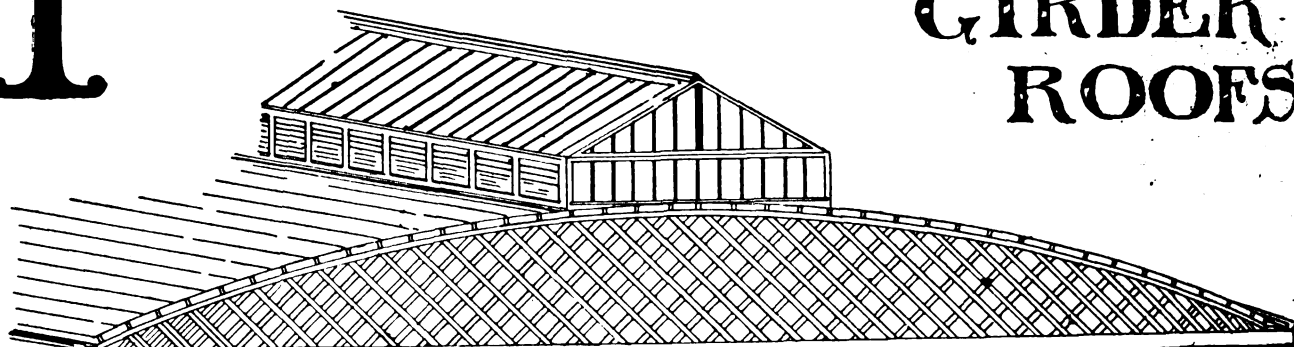
*Glasgow*.—Robroyston Hospital: completion.

#### IRELAND.

*Dublin*.—Factory, Nassau Place: extension for Messrs. Cantrell & Cochrane. Mr. G. F. Beckett, M.R.I.A.I., architect, 97 Stephen's Green.

SECOND-LIEUTENANT HAROLD LEOPRIC HELSDON, Dorsetshire Regiment, attached Royal Warwickshire Regiment (killed on the night of November 25-26 on patrol duty), was the eldest son of Mr. H. J. Helsdon, J.P., F.R.I.B.A., of St. Edmund's Terrace, Primrose Hill. Educated at Westminster, where he was head of his House (Ashburnham), he joined the Inns of Court O.T.C. on leaving school at Easter 1915, and was granted a commission in the Dorsets. At the time of his death he had been at the Front for five months, and had recently been given duties in connection with intelligence work for the battalion. Lieutenant Helsdon had attained his twentieth year a week before his death.

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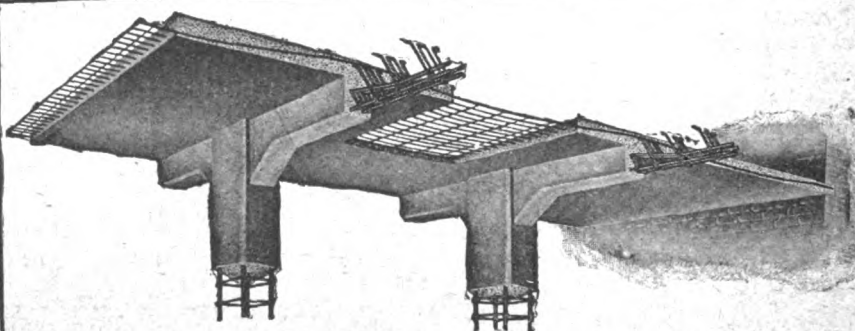
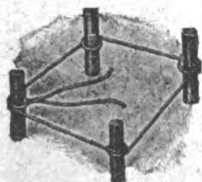
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# THE ARCHITECT

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## ON CURVES.

WE are all aware of the dictum that in Nature there is no such thing as a straight line. Hence all Nature's lines are curves, and when we admire anything as beautiful in natural objects we are admiring curved lines and surfaces. There is, therefore, something in the connection of curves that impresses us with an idea of beauty. Beauty is subjective not objective, according to one school of æsthetics. It lies in our recognition of certain qualities possessed by what we consider a beautiful thing, not in the existence of any concrete thing or quality, called beauty, in any natural object. And those who hold this view assert that predominant fitness of anything for its purpose is the quality that leads us to recognise it as beautiful. On the other hand, it may be argued that as fitness is objective, if beauty is our recognition of that fitness, what we really admire is that fitness which constitutes beauty, and therefore it follows that beauty is objective. This dialectical discussion need not, however, detain us further. Suffice it to say we find in things which we consider beautiful that curved lines and surfaces predominate.

Starting from the premiss that curved lines and surfaces are commonly associated with beautiful forms, it is natural to inquire if any specific class of curve is prevalent in those forms that are esteemed beautiful. It has been shown by Penrose that in the sections of mouldings of the best period of Greek architecture curves of conic section were employed in preference to the simpler circular sections used later by the Romans, and there is a general consensus of opinion that the profile of the Greek is more beautiful than that of the Roman.

Now the curves of conic section, though mathematically capable of expression as the locus of a point moving in accordance with a strict law of proportion between a distance from a fixed point and a fixed line, differ from a circular curve in the amplitude of their variation from a straight line. It is subject to a law, but a law of greater complexity than the circle. It would seem, therefore, that beauty of form depends to some extent upon conformity with a law and also with some degree of mystery or at least avoidance of too obvious an insistence upon that law.

From the earliest manifestations of human activity in art, the work of the Palæolithic Aurignacians, through the various epochs of prehistoric man and the earliest aboriginals of our present era to the culmination of Greek art, we find that the use of curves, and particularly spiral curves, has ever been a favourite motif of decoration and ornament. We may take it, therefore, that the spiral has ever been regarded as connected with beauty of line.

There are many kinds of spirals distinguished by the mathematician, the simplest groups of which are the flat spiral, or spiral in one plane, the conical and the cylindrical helix, or spirals of three dimensions. Spirals

may also be described as right-hand or left-hand. A right-hand flat spiral develops from its centre of origin clockwise; a left-hand flat spiral contra clockwise. In a flat spiral object, such as an ammonite shell, the definition of the spiral as right- or left-hand will depend upon which side of the shell is uppermost; but in the majority of natural shell forms a conical helix admits of definite nomination as a right-hand shell, which has its opening on the right side and exhibits right-hand spiral formation, or a left-hand shell, which turns in the opposite direction. The right-hand shells are by conchologists termed leiotropic (turning to the left), because an insect entering the mouth and ascending the spiral continually turns to the left; whereas a shell exhibiting left-hand characteristics is called dextrotropic (turning to the right).

All true spirals develop in accordance with a regular gradation of increase, of which a series of steps or throws can be expressed by a mathematical formula; and much study has been devoted by painstaking investigators to the determination of the precise mathematical formula which will express the spirality of certain shells, plants, and other natural objects, even to the astronomical nebulae.

Especially prominent amongst these investigators has been Sir Theodore A. Cook, who in his book,\* "The Curves of Life," gives us the result of his investigations during twenty years of study, and brings them up to the actual statement of a theory. "Just as Newton began by postulating Perfect Motion, and thence explained the working of the solar system, so it may be possible to postulate Perfect Growth (by means of a logarithmic spiral), and thence arrive at some law ruling the forms of organic objects as gravitation is held to prevail in the physical world."

Spiral formations are to be seen throughout organic nature, from the microscopical foraminifera and from life forms even smaller still. Sir T. Cook has studied them in shells, in leaves, in climbing plants, in horns, in the human body, in the heavens, and he claims to have discovered a fundamental principle which, from the ratio of Pheidias, he calls the Phi Progression.

Mr. Arthur Balfour, in the Romanes lecture delivered at Oxford in 1909, declared that it was absolutely hopeless to find a scale (in matters æsthetic) which shall represent, even in the roughest approximation, the experiences of mankind. Sir Theodore observes in relation to this pessimistic dictum: "Now I shall not, of course, attempt the arrogance of announcing that so difficult a problem has been solved. I suggest only that it has been mitigated by a formula which does 'represent the experiences' not of mankind only, but of all life as we know it, by that new conception called the Phi Progression, which explains not only the phenomena of vital growth, but also the principles which underlie both the artist's expression of the beautiful and our own appreciation of it. This ratio of Pheidias does not, of course, provide a recipe by which any modern mathematician can produce a rival to the masterpieces of Hellenic sculpture or to the paintings of a Turner or a Botticelli. For Phi is no royal road to beauty, nor does it in any way diminish the charm and wonder of the artist's achievement; but it does imply that if we realise the variations and divergences observable both in beauty and in life, we may discover that each is visibly expressed to us in terms of the same fundamental principle."

The Phi Progression is expressed by the formula:—

$$\phi^n = \phi^{n-1} + \phi^{n-2}$$

$$\text{hence } \phi^2 = \phi + 1 \text{ and } \phi = (1 \pm \sqrt{5}) \div 2$$

\* "The Curves of Life." Being an account of Spiral Formations and their application to growth in Nature, to science and to art; with special reference to the manuscripts of Leonardo da Vinci. By Theodore Andrea Cook, M.A., F.S.A., author of "Old Touraine," "Rouen," &c. With eleven plates and 415 illustrations. (London: Constable & Co., Ltd. 12s. 6d. net.)



Sir T. Cook's position is that beautiful forms in nature, whether in shells, flowers, or other organisms, arouse in us an emotion due both to the unconscious but continuously instinctive efforts made by the growing organism to adapt itself to its environments, and to the fact that those efforts have been sufficiently successful to express that organism's fitness to survive. Had they been insufficient it would have died. In the spirals developed by the successful growth, Sir T. Cook finds that the processes of growth are explained by the Phi spiral and the successive proportions they reveal have an intimate connection with the source of our pleasure in the beauty of a natural object.

The author also postulates that in a great work of art, such as a masterpiece of painting, an analysis of the proportions of the picture ought to reveal the same proportions as have been developed in Phi to explain the processes of natural growth, and he selects certain masterpieces to show his discovery of an application of the Phi Progression in their proportions. At the same time he admits that interesting variations from any such simple formula as Phi are to be found in the best art, just as they are to be found in the surviving organisms. His defence of the inability of the Phi Progression to meet all cases is that this is due to the existence of life, and may be accountable to some as yet undiscovered law.

Sir T. Cook will not go so far as to imply that a great artist had any preconceived idea of using the Phi proportions in his composition, any more than the nautilus had any conscious plan of developing a certain spiral in its shell; but he ventures, in fact, to offer Phi as an underlying reason for what we call beauty both in a natural object and in a masterpiece of art.

We can commend this book as a most interesting account of research on the character of the curves in organic nature, whether or not the reader is prepared to accept the conclusion of the importance of the Phi Progression, for which, however, it must be admitted the author has made out a very good case.

#### NOTES AND COMMENTS.

It is by no means easy to form a fair and unbiassed opinion as to the ultimate destination that should by rights be allotted to Sir Hugh Lane's collection of modern French pictures. The Trustees of the National Gallery have unquestionably the legal right to their custody, and also are in actual possession. It may very well appear to them that, as Trustees, they cannot indulge in a sentimental generosity and bestow them in accordance with an improperly executed codicil, even though it be in Sir Hugh's own handwriting. Still less would they be justified, *proprio motu*, in accepting Mr. D. S. MacColl's statement of an intention by the testator that the pictures in question should form the nucleus of a gallery of modern works, or Mr. C. Lewis Hind's suggestion that the collection should be divided between London and Dublin. In default of an Act of Parliament releasing them from their strict obligations and appointing some other distribution, we do not see that the Trustees of the National Gallery can depart from their legal position. The news that an extension of the Tate Gallery, after the war, for the purpose of housing the collection of modern pictures is likely to materialise can hardly affect the legal position of the Trustees or alter the presumed obligations of their trust.

At any time before the war a voyage westwards on an Atlantic liner might be reckoned with certainty to bring one in contact with a mining engineer in charge of a "proposition" overwhelmingly attractive, putatively, to London financiers. Hence there may be a natural inclination to view with caution the proposition of an American mining engineer, who is said to have come to London with an invention for using nitrogen as an energy-producer in place of coal, at a fraction of the cost. We have no doubt, however, that the present British Government, to whom, it is stated, the invention is first to be offered, will give sympathetic consideration to the

possibilities of a method by which one ton of nitro-energy will do the work of thirteen hundred tons of coal and enable electricity to be produced at a fiftieth of the present cost.

There is one question in connection with housing that will have a vital bearing on the problem after the war—the question whether the tenants will be prepared to pay a higher rent than that to which they are now accustomed. If the worker who has paid 8s. a week refuses to pay 10s. or 12s. in the future, it is clear that there must be a considerable amount of State or municipal subsidising, or the worker must descend to a lower scale of living. The three-roomer must become a two-roomer or a one-roomer, and with this there will ensue a serious decline in the public health. The question is, of course, wrapped up to some extent with the level of wages in the future, and this is dependent upon the state of national industry and commerce, the real source of wages.

Arrangements for the holding of the British Industries Fair next year are now complete, and forms of application for space are being issued by the Board of Trade. The fair will be held from February 26 to March 9.

The growth of the fair has necessitated an increase of space, with the result that the fair will be held partly, as last year, in the Victoria and Albert Museum and partly in the great hall and certain galleries in the Imperial Institute Building.

The fair will be confined to the same trades as were sanctioned by the Minister of Munitions last year—toys and games, earthenware and china, glass, fancy goods, stationery, and printing. An important development, however, has taken place since last year in that the Municipality of the City of Glasgow are organising a fair at Glasgow, which will take place concurrently with the Board of Trade Fair in London, and will include certain trades not comprised in the London Fair. The Glasgow Fair, which is being held with the support of the Board of Trade, will include textiles, ready-made clothing, boots and shoes, foodstuffs (prepared and preserved), and domestic chemicals.

Over 20,000 invitations to each fair will be sent to overseas buyers by the Board of Trade, those to firms in non-European countries having been already dispatched, and another 80,000 invitations to the fair in London will be issued to buyers in this country before February 24.

At a recent meeting of the Society of Antiquaries of Scotland, Miss J. M. Hanna in a paper entitled "Notes on the Royal Heart preserved in St. Margaret's Convent, Whitehouse Loan," gave a description of the history of the heart and considered the evidence as to its identity. Encased in a leaden casket, it was removed from one of the tombs of the Plantagenet Kings and contemporary royal personages in the Abbey of Fontévrault in Touraine at the time of the French Revolution, and was long believed to be the heart of Henry II. After passing through various hands it was eventually presented by the Municipality of Orleans to Monsignor Gillies to be taken back to England. Application was made to the authorities to have it reinterred in Westminster. This request having been declined, Monsignor Gillies brought the relic with him to Edinburgh, with the intention of placing it in a chapel which he proposed building in the Convent Church of St. Margaret dedicated to St. Thomas of Canterbury, and uniting it with relics of that saint. Subsequent evidence which Miss Hanna furnished showed that the heart was probably that of Henry III., which, enclosed originally in a golden vase, was buried at Fontévrault in the tomb of his mother, Isabella of Angoulême.

Mr. W. E. Parkinson, A.R.C.A., delivered a lecture in connection with the York series of art lectures, on

"The Art of doing Honour," dealing more especially with modern monuments. Many people, he said, were of opinion that the useful memorial was the only class worth considering, but the useless memorial, whose only purpose was to do eternal honour to the departed great, was probably the only real memorial possible. It had no object but to say, as beautifully or powerfully as the artist could express it, that its sole purpose was to do honour. There were innumerable failures in this class. The aim was a high one, and it was not to be wondered at that attainment was not by any means always reached. But, he believed, the considered verdict of history would be that we had travelled a great way since the early days of last century. Our modern sculptors had broken the cramping, joyless, trite, and pompous traditions that held them, and had founded a strong school of vigorous work, instinct with good tradition and lofty in aim. It was a very young school, and had hardly had opportunity of making itself felt throughout the land. Sculpture as yet appealed but little to us as a nation, but this, he was convinced, was only a matter of time. The greater number of this school emanated from the studio of Edward Lanteri, the Professor of Sculpture at the Royal College of Art, whose influence was perfectly stupendous. We as a nation owed this great Frenchman a great debt of gratitude for assisting, if not, indeed, largely founding, our school of sculpture. Many competent critics agreed that work had been done and is being done in our own generation here in England as fine as any that past ages could show. The lecturer claimed that beauty of form and colour in the memorial must be supplemented by beauty of thought in the inscription, a point that, he said, could not be too much insisted on.

An admirable article in the "Manchester Guardian" gives a full historical account of the beautiful sixteenth-century manor house of Eastbury, near Barking, and urges that the Borough Council should acquire the estate and preserve this fine specimen of Tudor brickwork as the Hampton Court of East London. For this proposal we have the warmest sympathy and trust that it may be carried into effect.

The report by the Executive Committee of the Scottish National Housing Company, Ltd., for the period ended September 30 last states that the company became entitled to commence business on August 14, 1915, and contracts for a first lot of 292 houses were placed in September and October 1915. Of these 175 are now occupied, and the remainder are in course of completion. Contracts for a second lot of 310 houses were made in May, August and October 1916, and these are now in process of erection. Contractors have had to contend with difficult conditions, and they are all more or less behind their contract dates. The Executive Committee are, however, pressing them to complete their work. Owing to the increased cost of building, and the consequent increased amount of economic rents, a supplemental agreement has been arranged with the Local Government Board whereby, in the event of the rents obtained for houses built, or required to be built during the war, being less than the amount required to meet the company's charges (including 5 per cent. on the shareholders' capital invested in these) against rents, the difference will be made up to the company by the Treasury. One thousand additional houses are wanted for occupation within one year, and special arrangements, including the leasing of additional ground, are in course of being made to meet this demand. These arrangements will be expressed in a further supplemental agreement with the Local Government Board.

Among the many industries in which this country was admittedly far behind Germany, in the days prior to the war; were several important branches of glass-making, such as the optical and chemical branches. As our readers are aware, the University of Sheffield has been chosen by the Government as a national centre for the study of glass technology, and a new department is being

established. In connection with the department, a National Society of Glass Technology has been formed, and one of the features of a meeting of that society, held at the University, was an exhibition which proved that, under the stimulus of the new study, much progress has already been made.

The principal advances, perhaps, have been in connection with thin laboratory glass. None of this was made in England before the war, the trade being almost entirely in German and Austrian hands.

At a meeting of the Royal Society of Antiquaries of Ireland the question of Dublin's venerable Old Newgate was discussed, and a resolution was adopted to the effect that the Society take such steps as they think advisable to bring the immediate attention of the Corporation to the condition of this historic gateway. It was probably, he said, one of the oldest in the United Kingdom—certainly, the oldest in Dublin; and they asked the Corporation not to allow it to be destroyed from any vandalism or iconoclastic indifference on the part of any member or any contractor in Dublin.

## ILLUSTRATIONS.

### OFFICES FOR THE GOVERNMENT OF THE DOMINION OF NEW ZEALAND.

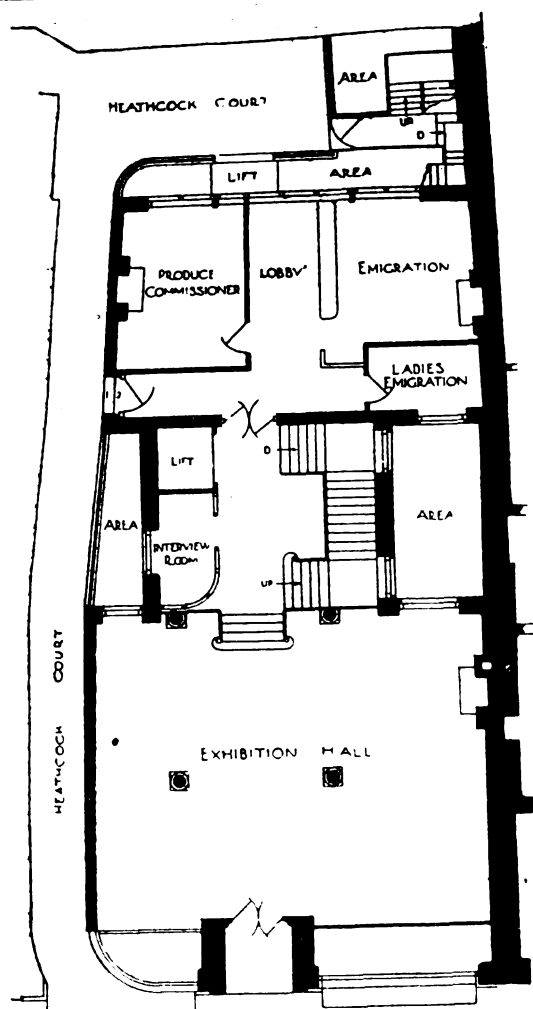
Our illustration shows the new offices built on the site of Nos. 413-416 Strand, W.C. The building is of fire-resisting construction throughout, the front of Portland stone, the back and areas faced with white glazed bricks. The roof, which is flat, is constructed of steel and concrete covered with asphalt, and the front is mansard, covered with Westmoreland green slates. The entrance doors and ground floor windows facing the Strand are in bronze. On the ground floor is an exhibition hall, with coffered ceiling and Ionic columns of Grande Antique marble, with bronze caps and bases; the floor is of Roman mosaic, with panels of rich coloured marbles. The main staircase is of Pentelikon marble, with wrought-iron balustrade and bronze handrail. On the first floor are the High Commissioner's room, library, and reading-rooms, with enriched plaster ceilings, and on the second floor the offices of the secretary to the department and the chief clerk. There are six floors in addition to the ground floor and basement, and the whole of the building will be used as offices for the various departments. The builders are Messrs. John Greenwood, Ltd. Amongst the sub-contractors were Messrs. Claridge's Asphalt Co. for asphalt work; Messrs. Waygood-Otis, Ltd., for the lift, and Messrs. J. Whitehead & Sons, Ltd. for the marble work. The architects are Messrs. Crickmay & Sons.

### DESIGN FOR COUNTRY HOUSE.

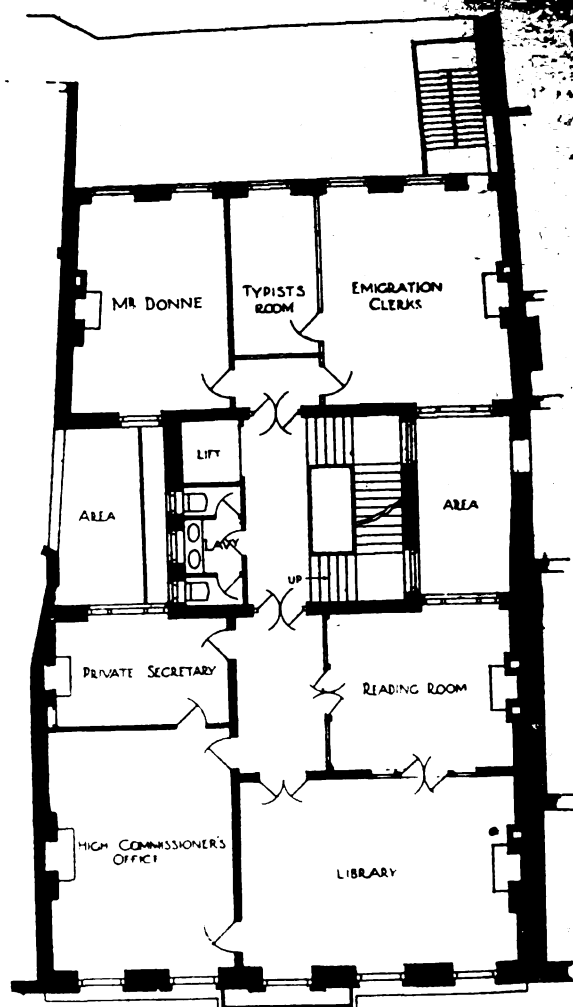
THIS house is intended to be built of stone, the external walling being of rubble limestone in narrow courses, with an internal lining of brick, and quoins and dressings of Hornton stone. The chimneys are of both stone and brick as and where indicated, and the roofs (save those over tower and principal stair) are of brown tiles from various kilns. In addition to the bedrooms on plan, there are also six good rooms in the roofs. The summer house is so placed that it may screen the terrace from the east wind, the hatch providing for meals to be served in it when required. The servants' stair performs the like office to persons waiting for admission at the principal entrance, the oriel over keeping off the rain. The servants' hall has a southerly outlook without encroaching on the privacy of the house. The design is the work of Mr. E. Swinfen Harris, F.R.I.B.A.

### A COUNTRY HOUSE.—FIREPLACE IN THE HALL.

THIS mantel is to be carried out in Painswick stone throughout, and lined up inside with red tiles laid in cement, with wide joints to the height shown, the stone (carrying wood fuel) to be hard fireproof on brick dwarfed walls. The floor is of red and the border of black tiles, both unglazed, the small squares being glazed



GROUND FLOOR PLAN.



FIRST FLOOR PLAN

THE DOMINION OF NEW ZEALAND NEW GOVERNMENT OFFICES.

green. The four portraits of members of the family are to be of hand-painted tiles, the motto, in lead letters, flush with face of lintel. The heraldries and mantling carved in relief, painted and gilded. Mr. E. Swinfen Harris, F.R.I.B.A., is the architect.

### SCIENCE AND INDUSTRY, WITH SPECIAL REFERENCE TO THE NATIONAL PHYSICAL LABORATORY.\*

By R. T. GLAZEBROOK, C.B., M.A., D.Sc., F.R.S.,

*Director of the National Physical Laboratory.*

*(Concluded from last week.)*

DR. ROSENHAIN in the lecture already referred to takes as an instance the case of a series of alloys which is being studied by an investigator interested mainly in theoretical metallurgy; he works with pure metals or metals as nearly pure as he can get them, and finds that one alloy of his series has some specially noteworthy properties. He may call the attention of a manufacturer to these and suggest that the alloy might have valuable industrial application. Much, however, remains to be done before this can be realised; the pure materials of the investigator are not available in quantity. To what extent is the presence of impurity detrimental, what are the impurities which must be removed, what are the steps required to do this on the requisite scale, to what extent do the difficulties involved in this render the whole method commercially impossible by adding seriously to the cost? Is there any difference between the material made in quantity and that produced by the laboratory furnace, where rapid cooling or heating may be readily employed, although impossible in the full scale work, and so on? For the industrial research laboratory the plant, &c., must be so planned that it is possible to carry out

the necessary operations on a scale comparable with that required in works, and, moreover, the man who carries through the investigation must be not only acquainted with the latest scientific advances in his subject, but must know what is possible in works, and must mould his solution of the problem to harmonise with these possibilities. The undertaking is often more complex than that of the pure scientist. It is one which needs a special laboratory, a special equipment. Thus, the task of an institution like the National Physical Laboratory differs from that of either a university or technical college laboratory or a works laboratory. In the first place it is not educational; every member of the staff is, it is true, learning continually, but he is not there to be taught, but to be asked questions and to find the answers. Its functions are primarily to encourage and initiate the applications of science to the problems of industry. It is, in the words of the Order in Council already quoted, an institution for the scientific study of problems affecting particular industries and trades. The staff devote themselves solely to this work, their whole time and energy are given to it. They have no educational duties; they are free from the responsibilities of the class-room and the burden of students' exercises. The senior members of the staff joined avowedly with the purpose of applying science to industry; they are prepared to make it their life-work. The juniors retain their posts for some time; thus all acquire a store of experience of the highest value, with a unique knowledge of the technical aspects of industry which it is difficult to gain in any other way. The Laboratory has, I trust, acquired the confidence of the technical industrial world, and problems are brought before the staff with the knowledge that they will be handled in a confidential manner by men trained to deal with them. In such an institution it is possible to specialise as to both staff and equipment in a manner which can hardly be done in a laboratory attached to an educational institution. The whole staff are engaged in applying science to industry; equipment is provided for this purpose only. The needs of the students and the

\* Address delivered to the Birmingham and Midland Institute on December 4.



educational value of the apparatus have not to be considered.

Standardisation in all its branches is an important function of such a laboratory, and this involves research. The methods of measurement, the materials in which the standards can best be expressed, the accuracy of reproduction and the conditions of use all need investigation.

One other aspect of the matter remains to be considered, though very briefly. If we are to have a National Industrial Research Laboratory, who is to pay for it, who is to support it? The obvious answer is the nation, but this in some quarters at once raises a difficulty. It is claimed that the results of any successful research bring profits in the first instance to some particular class, and that class ought to pay. For example, the discovery of some new and valuable alloy would profit, in the first instance, the manufacturer of the alloy, and the persons employing it in their special trade. Before, therefore, you undertake an investigation you must secure, so it is said, the co-operation and financial support of a limited class who will presumably benefit by the success of the investigation. And no doubt as a general rule, in cases in which it can be applied, this principle is a sound one, but such cases are limited. If a manufacturer comes with a conundrum, which he desires to have answered for his own private benefit, he must pay; but if a competent committee controlling an industrial research laboratory concludes that a research is of importance and likely to lead to knowledge of benefit to the whole industry with which it is concerned, I would plead that the cost of such a research should be met out of national funds. It is very difficult to say what individual will profit most in the end. An improvement in an industrial process leading to more employment and to a cheaper method of manufacture benefits a wide circle beyond the man who introduces the process. Germany—not merely Messrs. Schott and Zeiss—has profited by the labours of Abbé and his co-workers at Jena, labours rendered possible in the first instance by State help. No doubt there are cases where the co-operation of an industry can and should be secured; sometimes, too, it will be in the public interest to protect a discovery by a patent, if only to prevent action by a private firm restricting the free use of the discovery, but, in my opinion, it is not well to hamper those who control the laboratory by conditions aimed at securing support from industry before any special research is commenced.

The needs of the nation at the present time are too serious, the danger of delay too pressing, and the State may well devote large sums to industrial research without minute inquiry as to whether the research is going to benefit Messrs. A. B. specially and what share, therefore, of the expense Messrs. A. B. must be asked to guarantee. In America the Bureau of Standards, in Germany the Reichsanstalt and the Material-Prüfungs-Amt work thus for the national good, and this should be the task of our English Industrial Research Laboratory.

And now, having summarised briefly some of the aims and objects of the National Physical Laboratory as a laboratory of industrial research, let me give some account of the place and its work during the past fifteen years, and then let me outline the task that lies before it in the future.

It was founded in 1899. My appointment as its first Director dates from January 1, 1900, but its home at Bushy House, Teddington, was not ready for it until 1902. It is controlled by the President and Council of the Royal Society, but that control is exercised through a General Board and Executive Committee containing representatives appointed by six of the great technical societies; at least half of the unofficial members of the Executive Committee must be selected from the representatives of these technical societies. The Royal Society receives from the Government the sum of £7,000 annually towards the cost of the laboratory.

In the year before the war the actual expenditure was nearly £41,000, and practically the whole of the difference between these sums had to be raised as payment for

work done; towards this an amount of about £5,000 was received from the Government for researches in aeronautics. The Government also pays for tests and investigations carried out for their various departments.

The financial responsibility for the laboratory rests on the Royal Society. If in any year there were a serious deficit it would fall to the Society to make it good, a risk which you will agree with me in thinking ought not to be incurred by a learned society. As a matter of fact, the working of the laboratory has resulted in a small balance—now amounting to some £4,500—which constitutes its working capital. To run a business of £40,000 a year on a working capital of £4,500 is a hazardous procedure. The fact is that the whole financial position needs overhauling. Before the war the German institutions in Berlin, which covered approximately the same ground as the laboratory, had an income of about £70,000, while that of the Bureau of Standards of America was well over £100,000. In both these cases the Government are responsible for the whole expenditure, and take the receipts from fees.

The laboratory owes much to private donors.

During the first fifteen years of its existence the grants from the Treasury for capital expenditure amounted to £59,000; during the same period nearly £56,000 was received in donations and grants from various individuals and institutions, while nearly £20,000 was defrayed out of income.

Towards the annual expenditure, in the same time £80,500 was received from the Treasury—the Treasury grant was originally £4,000—£166,000 in fees, while £15,000 came from grants from bodies like the Institutions of Civil and Mechanical Engineers, the Iron and Steel Institute, the Institution of Naval Architects, and private individuals. The total expenditure on aeronautical research defrayed by Government amounted to some £33,000. These figures carry the expenditure up to March 31, 1914. Since the commencement of the war the whole laboratory has been given up to war work, and the figures for that period would have little meaning in connection with our subject.

The laboratory is situated at Bushy House, Teddington, an old Queen Anne House, the former home of the Ranger of Bushy Park; the last Rangers were H.R.H. the Duke of Clarence—afterwards King William IV.—and his wife Queen Adelaide, who retired to Bushy House on the King's death.

In 1902 the laboratory consisted of the old house and a small building fitted as a power house and engineering laboratory.

To-day it comprises eight large buildings. It is organised in four main departments, each with its superintendent.

These are:—

- (1) Physics. Superintendent, the Director.
- (2) Engineering. Superintendent, Dr. T. E. Stanton, F.R.S., M.Inst. C.E.
- (3) Metallurgy. Superintendent, Dr. W. Rosenhain, F.R.S.
- (4) The William Froude National Tank. Superintendent, Mr. G. S. Baker, M.Inst. N.A.

The Physics Department is divided into six divisions, each under a Principal or Senior Assistant, and there is a large staff of scientific assistants, divided into senior assistants, assistants, and junior assistants. The primary work of these is scientific research, though each is expected to take his share of the testing and examination of instruments, which forms a large part of the work of the laboratory. Beyond these, there is a staff of observers whose main duty is the routine test work, though opportunities are given to these to help as far as possible in the researches. The routine test work is concerned chiefly with instruments; ordinary commercial, chemical, and strength tests of materials are not undertaken by the laboratory except for Government Departments, or as matters of special investigation.

And here let us note the importance of keeping the test work a live thing by the aid of research. Instruments

are tested to see, among other objects, if they come up to standard, but the standard of to-day is too low some years hence; the tests must be so regulated as to tend to a gradual improvement in the product, and this can only be done by accompanying the tests with continuous research—research into methods of construction, into the materials most suitable for use, into the scheme of tests most helpful towards forming a correct opinion of the value of the instrument. Research must go hand in hand with testing. Without such close co-operation routine tests grow obsolete and cease to be of value; worked thus they prove an important aid to the manufacturer and a most desirable check on his production. Let me give an example of this. Ordinarily, we test a large quantity of a certain article, and the average failures are under 1 per cent.—some seven or eight in a thousand. Recently, in consequence of pressure, articles were passed into service without tests, and after a time the tests were introduced; on the earliest batches examined after the change the failures were 18 per cent., they were twenty-five times as great as previously. The number of instruments tested in the year covered by the last report—to March 31, 1916—was over 75,000. This does not include gauges for the Ministry of Munitions which in the past fifteen months have numbered nearly 250,000.

The buildings are, in the main, plain single-storey brick structures with weaving shed roofs and top lights designed in each case specially for the purpose for which they are used—*e.g.*, the metrology building consists of an outer shell enclosing a series of interior rooms—in this way a constant temperature is maintained.

The new administration block is an exception to this: the architect was asked to clothe it with a shell in the same style as Bushy House itself, and has done so most successfully. It was opened by Mr. Balfour in the summer of 1913.

And now I have tried to show you, in brief outline, how the National Physical Laboratory endeavours to be a laboratory of industrial research.

I trust I have convinced you—probably you did not need convincing—that such laboratories are necessary.

There must be more than one; in many cases an industry can be best served by a laboratory near its principal centre. Large firms, again, may each prefer to have their own trade secrets—this must be so to some extent—and trade jealousies may interfere with full co-operation, but a private laboratory on a really sufficient scale is expensive; too often it becomes little more than what I have called a works laboratory for testing the products of the factory, and for the smaller firms, at least, the only way to secure the full advantage of scientific advance is by co-operation—co-operation in the laboratory, co-operation, with specialisation in production, in the works themselves.

There is much for us all to do, and I ask your active support to make the National Physical Laboratory more efficient, more worthy of its name.

Increased funds must be provided, and it is only through the aid of the manufacturers, and of those who from experience have profited by the work of the laboratory, that the authorities can be induced to do all that is needed to establish the laboratory in a secure position.

On Friday last, in the hall of the Institution of Civil Engineers, some of us listened to an address by Lord Crewe, President of the Privy Council Committee, on the subject of Industrial Research. It was in reply to a deputation from the Joint Board of Scientific Societies. Sir J. J. Thomson, President of the Royal Society, had spoken eloquently on the claims of Pure Science, Sir Maurice Fitzmaurice dealt with Engineering, and Professor Baker with Industrial Chemistry.

Lord Crewe announced that a large sum—the exact figure was not mentioned—is to be at the disposal of the Committee during the next five years, and outlined the scheme for its expenditure. Associations are to be formed representing various trades or industries; the representatives of these will discuss with members of the Advisory Committee, and other experts, questions

needing scientific investigation and, when these are determined, the grant, supplemented in most cases by funds raised privately or contributed by the industry, is to be used to carry them out. Such work needs laboratories, and it is here, it seems to me, that the future of the National Physical Laboratory lies. The Lord President spoke in generous terms of the work of the Laboratory in the past; its many friends who heard him were grateful for his cordial recognition of our labours, and he indicated a sphere of wider usefulness under less difficult conditions in the future. Let me picture to you what I trust that sphere may be.

In many cases, no doubt, the researches contemplated must go in special laboratories arranged and equipped for the purpose—laboratories closely connected with the industry it is desired to help, situated at the great manufacturing centres; but there are many other researches of wide interest and great importance for which a central laboratory is the proper house, a laboratory fitted and equipped in an ample manner, with a trained and competent staff animated like those, my colleagues, who have built up the National Physical Laboratory, with a love for science and yet withal with a keen appreciation of the practical side of the question discussed and a real desire to help our country by the application of science to industry.

The body controlling industrial science research must have access to a laboratory in which may be studied the many problems which do not require for their elucidation appliances of the more specialised “works” character or opportunities only to be found in particular localities; where a staff is available, able and experienced, ready to attack under the advice of men skilled in industry the technical difficulties met in applying new discoveries on a manufacturing scale or to develop ideas which promise future success.

Such a rôle the National Physical Laboratory should be prepared to play, such is the future which I trust may be in store for it.

### CHARING CROSS BRIDGE AND THE L.C.C.

THE Improvements Committee of the London County Council have prepared the following report, which has been considered and accepted by the Council at last Tuesday's meeting:—

After the rejection by the House of Commons on July 3, 1916, of the South-Eastern and Chatham Railway Company's Bill seeking power to execute certain strengthening works at Charing Cross bridge, letters were received from the Company asking that the question of effecting an improvement of the area occupied by the bridge and Charing Cross railway station might be brought before the Council at the earliest moment in order that the Company might know what action to take with regard to the bridge. Notice has been given by the Company of its intention to promote in the next session of Parliament a bill to provide for the strengthening of the bridge; so that the public questions raised on the bill recently rejected call for early attention.

We are of opinion that, in the event of the railway company promoting in the next session of Parliament a bill seeking powers similar to those refused by Parliament in the session of 1916, a conference should be held between representatives of the various authorities and bodies concerned; and the authorities and bodies to be invited to send representatives to the conference would include the Board of Trade, H.M. Commissioners of Works, the City Corporation, the Port of London Authority, the Westminster City Council, the Lambeth Metropolitan Borough Council, the Royal Institute of British Architects and the London Society.

It is important that when the Company's proposals for the strengthening of Charing Cross bridge are before Parliament in the next session the views of the public authorities with regard to the bridge should be ascertainable, and with this object it is desirable that there should be no delay in making arrangements for a conference.

Subject to the concurrence of the General Purposes

Committee, with whom we are conferring, we recommend—

That in the event of the South-Eastern and Chatham Railway Company promoting in the session of Parliament of 1917 a bill seeking powers similar to those refused by Parliament in the session of 1916 relative to Charing Cross bridge, and on the understanding that the Council shall be in no way committed as to its policy in the matter which is the subject of conference, the Improvements Committee be authorised to confer with representatives of the various authorities and bodies concerned in the public questions arising in connection with Charing Cross bridge.

### "OWEN JONES" PRIZES.

COMPETITIONS, under the terms of this Trust, have been held annually from 1878 to 1915 in connection with the National Competition of the Board of Education. This competition not having been held in 1916, the prizes were not awarded.

The Council of the Royal Society of Arts are now prepared to offer six prizes for designs for textiles.

Each prize will consist of a bound copy of "The Leading Principles in Composition of Ornament of Every Period," from the "Grammar of Ornament," by Owen Jones, and the Society's bronze medal.

The designs should be suitable for:—(1) upholstery, including curtains, coverlets, &c.; (2) costume and costume accessories, such as bags and purses; (3) carpets and rugs; (4) tapestry; (5) printed, dyed, and stencilled fabrics; (6) lace and embroidery.

This classification, however, is not exclusive, and designs intended for any textile application not specified will be admitted.

The competition will be limited to students of Schools of Art. No competitor may send in more than a single design in each of the above classes, but that design may be accompanied by one or two illustrative sketches if necessary. If desired, a sample of finished work executed from the design may be submitted with or in substitution for the original drawing.

Each design must be accompanied by a statement of the intended material (*e.g.* silk, cotton, linen, wool, &c.), the process of manufacture (*e.g.* weaving, lace-making, printing, painting, embroidering), &c., and the contemplated use of the finished material.

Competing designs must be approved by the Master or other authority of the student's school, who must also certify that the design is the work of the student sending it in, and that it has been executed since the date of the last competition. No candidate who has already received an Owen Jones Prize can take part in the competition.

Competing designs must be sent, carriage paid, and labelled "Owen Jones Prize Competition" on the outside, to the Director and Secretary, Victoria and Albert Museum, South Kensington, S.W., between June 25 and June 30, 1917. They may be delivered by hand on any one of the three days ending June 29.

The sender must also notify the Secretary of the Royal Society of Arts by post that the design has been sent in, and must enclose stamps or P.O.O. for the return carriage. No special conditions are laid down as to the size or character of the drawings sent in.

The awards will be made by the Council of the Royal Society of Arts on the recommendation of judges appointed by them.

The Council reserves the right of withholding any or all of the prizes offered, and they will be the sole judges in each individual case of the qualifications of a competitor to receive an award.

THE Paris Municipal Council has accepted a gift offered by a distinguished Englishman, who desires to remain anonymous, of the painting by Greuze of the "Head of a Child." The picture is supposed to be the portrait of the Dauphin in the Temple. A gold medal commemorating the gift will be conveyed to the donor through M. Paul Cambon, French Ambassador in London.

### HOUSING THE MUNITION WORKER.

ONE of the most urgent problems which the Ministry of Munitions has to solve is the housing of the munition worker. The opening of a new factory, or the conversion of existing works to the needs of the State, often involves the transference of large numbers of workers to localities which at most can meet the requirements of a normal population, and even to localities where there is an actual shortage of houses. The immediate remedy is found in the provision of temporary accommodation; but in other cases permanent buildings are erected, the latter method being followed especially where house famine is known to have existed in pre-war days and where there are good prospects of permanent manufacturing activity. The methods adopted by the State for the provision of permanent accommodation vary according to local circumstances. In certain cases loans are made to public utility societies which undertake the housing of munition workers, such loans being conditioned after the manner familiarised to the public by garden suburb and other associations. In other circumstances loans have been made directly to certain individual firms. These loans have been issued at the current rate of interest—usually 5 per cent.—and run, generally speaking, for a period of forty years. Certain private firms—now controlled establishments—have, moreover, been permitted to charge some portion of the increase on the cost of building due to war conditions to that part of the firms' profits which would otherwise have gone to the Exchequer. Such an arrangement is, however, only made in exceptional cases. A contribution of a part of the capital cost of building is in other instances made by the State to certain local authorities. In all cases this contribution is less than the estimated increase due to war conditions.

The type of permanent building erected by these varying methods is similar, and is that which characterises our newer industrial areas—*i.e.*, a two-storey brick cottage, containing two or three bedrooms, a living-room, a kitchen, and a bath. In Scotland a permanent dwelling of more limited accommodation is often provided. Far more variety in construction has been found possible in the provision of temporary accommodation, and excluding the adaptation of existing buildings three distinct types of provisional accommodation have made their appearance: Temporary cottages, hostels, and hutments, or groups of hostels. In two cases, moreover, the Ministry of Munitions has been obliged to provide temporary villages with their own schools, churches, hospitals, shops, and institutions. One of these munition villages is peopled almost entirely by Belgians. The temporary cottages for the use of munition employees correspond fairly closely with the usual type of permanent cottage, save that the former are built of wood or concrete instead of brick, and are usually one storey instead of two. They contain from three to five rooms, and are generally rented on the basis of from 6s. 6d. to 7s. 6d. a week for a three-roomed cottage.

The hostel is usually designed to house about thirty persons, although larger erections have been made where the demand for the housing of girl workers has been pressing. It is provided with its own kitchen, dining-room, and common-room, and to a certain extent life therein approximates to that of a large family. The hutment or colony system, where several hostels are grouped is found particularly convenient where a large number of women workers must be accommodated. Each hostel is designed for the sleeping accommodation of from 100 to 130 persons, the dormitories being divided into cubicles, some single, some double. Adequate accommodation for bath-rooms, &c., is always made in these dormitory blocks. Under this colony system, however, meals are usually partaken of in separate buildings, where the residents from all the hostels meet in the dining and recreation rooms. An administrative block is also erected, where the offices and rooms of the lady superintendent, matrons, and staff dispensary and invalids are located. All the buildings are heated by hot-water pipes and are lit by electric light or gas.



## WAR ECONOMIES IN LIGHTING.\*

By L. GASTER.

(Honorary Secretary of the Illuminating Engineering Society.)

ONE of the most noteworthy and revolutionary changes made, largely with a view to saving in fuel, is the Summer Time Act, generally known as "Daylight Saving Act," which came into force from May 21 until October 1 in the present year. The effect on supply companies naturally varies much, according to the locality and the percentage of gas or electricity used respectively for lighting and fuel. In purely residential districts the diminution in output has been considerable. In Ealing, for example, it is stated to have been as much as 23 per cent., and other companies similarly affected have remarked that the Act ought to be termed the "Artificial Light Saving Act"! According to some figures recently given by Mr. A. E. Mackenzie before the Manchester Local Section of the Institution of Electrical Engineers, the saving in the purely residential district of that city was 13 per cent., but in the industrial districts there has been, since the Act was passed, an actual increase of 8 per cent. Taking the entire field of supply, the saving is of the order of 1-1½ per cent. only, but even this is estimated to have led to an economy, in Manchester, of 400-600 tons of coal in the course of a year.

It would be most instructive if a complete survey of the effect throughout the country could be made, so that the resultant approximate actual saving in fuel could be estimated. The measure has been carried out with relatively little inconvenience, and may be permanently adopted after the war. At the present time, therefore, we should be prepared by gaining as full information of its effects as possible. Such an inquiry should not be confined to the actual fuel saving. It would be useful to ascertain if the change in habits of the people had been on the whole beneficial, and the effect of the measure on conditions of work in factories and offices. If it could be shown that the percentage of absentees through sickness had been materially diminished, this in itself would be a most important result, which would no doubt influence future decisions regarding premises into which the access of daylight is always deficient.

Associated with such an inquiry, again, is the whole question of the design of buildings with a view to maximum admissions of natural light, and the comparative value of the various devices for improving the light in existing buildings (the use of prismatic glass, mirrors, &c.). As a measure of economy, such devices, which prolong the hours during which artificial light is not needed, deserve much more scientific study than they have yet received in this country. These problems have an important relation to the work of the Committee of the Society on Natural Lighting in Schools, which was summarised in a Report issued shortly before the war, but has not since been carried further owing to lack of funds.

Mr. F. W. Willcox has recently pointed out the need for an accurate comparison of the initial cost of making special provision for daylight in buildings, such as specially designed windows, and the consequent extra internal heating to maintain the correct temperature. An equally important matter is the diminution in daylight caused by the practice of obscuring skylights, &c., in order to comply with the lighting regulations. If it could be shown—what is probably the case—that the cost of providing efficient blinds, which could be drawn down in the evening and released in the day, was small in comparison with the running saving in artificial light so caused, this in itself would be an important result.

*Economy in Artificial Light.*—I come next to the question of economy in artificial light. The national importance of economising in fuel supplies has led the Board of Trade to issue circulars requesting consumers to

diminish their consumption of gas and electricity for lighting, and inviting gas and electrical supply companies to co-operate in bringing about a 10 per cent. reduction. This matter was referred to in a recent editorial in the "Illuminating Engineer."

It was stated then, what I am sure will meet with general agreement, that judicious economy in lighting, by which is meant the prevention of the waste of light, and its application in practice in the most efficient manner, is one of the main objects of our Society. The advice widely placarded on the official notices throughout London—"Don't Waste Coal, Gas, or Electric Light"—meets with our full approval.

It is, however, necessary to supplement this advice by more detailed instructions as to how this waste can be avoided; and here our Society, which is constantly engaged in studying the proper methods of using light, is already doing national service. If the advice contained in the little pamphlet issued in 1913, entitled "Light and Illumination: their Use and Misuse," were generally followed, a very large saving, accompanied by an improvement in the conditions of illumination, would be at once secured.

On the other hand, we have abundant evidence that the mere diminution of illumination in cases where it is even at present insufficient for the purpose in view is false economy. I have so frequently referred to the conclusion of the Home Office Report on Factory Lighting that good illumination is essential in factories and workshops, and that defective illumination leads to diminished output, spoiled work, and an increased number of accidents, that it hardly seems necessary to go over this ground again. I should like to mention, however, that these conclusions are strongly endorsed in the series of bulletins issued by the Committee on the Health of Munition Workers during the present year, particularly in No. 9 relating to Ventilation and Lighting of Munition Factories, and No. 15 (just issued) on the Effect of Industrial Conditions on Eyesight. No one, at the present moment, would think of handicapping our munition factories by restricting the supply of gas or electricity, either for power or for lighting, and the same applies to all productive work, both from the economic and hygienic standpoints.

A well-considered scheme of economy, therefore, can be made effective only through the systematic education of people to appreciate the proper use of light, and the Authorities would greatly assist the objects they have in view if they were to make use of this Society to prepare definite instructions on the subject to various classes of the community.

I may say that I have reason to believe that suggestions from us in the proper quarter would receive sympathetic consideration.

The education of the public as to what constitutes good lighting is a most important duty at the present time; and the technical press, which has so widely noticed our work since the commencement of the illuminating engineering movement, can do good service by keeping this matter constantly before the notice of their readers.

Meantime we have before us every day many examples of wasted light. We see lamps in shop-windows shrouded with coloured paper or obscuring lacquer so that a mere fraction of the light produced is allowed to penetrate through the screen and carry out any useful purpose. In interiors we see old and wasteful types of lamps still employed, or lamps used without any adequate form of shade or reflector, throwing a large part of the light where it is not required.

One difficulty which one meets in making economies is that of obtaining a proper supply of the best types of reflectors. The shortage is presumably due largely to the exceptional demands of munition factories, and to limitations in manufacturing facilities or material. Some members may be able to make suggestions on this point. It may be that this is a case in which we have to submit to present inconveniences, but it should be clearly understood that this is in no sense an economy. The cost of

\* Part of an Address delivered at the meeting of the Society held at the House of the Royal Society of Arts, 18 John Street, Adelphi, London, on Friday, December 15.

installing proper lighting appliances is small in comparison with the saving over a number of years in gas or electricity consumption, not to mention the effect of unsatisfactory lighting on the output and quality of work.

Anything that can be done to encourage the development of lighting appliances of which we are lacking would be in the nature of an investment, since the life of such appliances is certainly much in excess of the lamps with which they are used. It would be interesting if makers could give approximate particulars of the life of reflectors of various kinds under average conditions; if they would state what can and is being done to collect and renovate reflectors, which, on account of surface deterioration, would otherwise be scrapped; and what other available materials could be suggested from which useful shades for temporary use could be made.

Assuming the need for economy, we are still in want of more definite information on the intensities of illumination actually required for various processes. This point was discussed at the time of the issue of the Home Office Report, and it will be recalled that in the American Code on Factory Lighting a rough classification of the illumination needed for safety and convenience, and for rough and fine manufacturing operations, was attempted.

So far, however, there has not been an exhaustive scientific investigation, based on actual results achieved with varying amounts of illumination. It is common knowledge that, with the introduction of more powerful lamps during the last ten years, the standard of illumination in interiors has steadily risen. There is good ground for thinking that this progressive change is well justified, and that the order of illumination prevailing in the days of carbon filament electric lamps and flat flame gas burners was often too low for modern strenuous work. In many instances it was certainly under a foot-candle.

Yet, from the standpoint of economy, it would be very important to determine the approximate upper limits, beyond which no gain in output or quality of work is to be obtained. A most instructive experiment is being conducted by the Commonwealth Edison Co. in the United States. A factory is being lighted in accordance with the best modern practice, and arrangements are being made for increasing at will the illumination to three times its present value. The experiment will be carried on for at least four months, the two methods of lighting being used alternately at intervals of a month, and a careful check of the output and quality of work kept throughout the entire period.

Now the Committee on the Health of Munition Workers has been carrying out many detailed investigations into the effect on output in munition factories of changing hours of work; and similar researches undertaken in France, and described in the Chadwick Lectures recently delivered by Professor William Stirling, showed beyond doubt that if the hours of work are increased past a certain point the output first becomes stationary and ultimately falls off.

Illuminating engineering in relation to factories should be regarded as an important branch of the admirable "Welfare Work" carried out under the Ministry of Munitions, with which it has much in common. From the commencement of the movement we have regarded illumination as a necessity in modern life, and inquiry into its use as a public service. This idea was emphasised in the closing words of Professor Silvanus Thompson's Inaugural Address to the Society in 1909. We have found, too, as those engaged in the Welfare Movement have found, the necessity for patient education of public opinion through our meetings and through the scientific and technical press. It would be most instructive if, while detailed investigations into other variations in conditions affecting the health and efficiency of munition workers are being made, the influence of changing conditions of lighting could also be studied.

*Lighting Conditions in the Streets.*—I come now to another aspect of economy in lighting, namely, the diminished illumination in the streets. I wish to make it clear, as I did when this matter was first mentioned at

the opening meeting of the Society in the autumn of 1914, that we are all willing to abide loyally by any conditions demanded in the interests of the safety of the country, and I do not mean to discuss this matter in relation to precautions which the Authorities consider necessary with a view to minimising the danger from hostile aircraft.

At the same time we cannot help being conscious that, if the assistance of those who have made a study of illumination for years were more effectively utilised, it might be possible to improve on the present arrangements in many respects—to make economies that would be very desirable at the present moment, and to provide conditions of illumination which, while meeting the views of the Authorities, would make the streets more tolerable for traffic and pedestrians.

One fact that has been strikingly brought out is the increase in the number of accidents in the London Metropolitan Police District due to motor vehicles which, for the years 1913 to the present time, were stated in the House, in reply to a question by Mr. Gilbert, to be as follows:—

Year	Fatal Accidents	Non-Fatal Accidents
1913* ... ..	424	13,153
1914 " ... ..	493	14,638
1915 ... ..	666	16,366
1916 to Oct. 31 ... ..	509	11,827

\* Taken from the Returns on Street Accidents caused by vehicles during 1913, presented to the House of Commons, February 25, 1914 (not stated in the House).

This increase has taken place in spite of a number of factors which should tend to diminish accidents, such as the diminution in the number of people and vehicles in the streets, the slower speed of traffic, the greater care exercised by drivers and pedestrians, and the tendency to greater sobriety since the outbreak of war.

The importance of the matter was emphasised at the Conference called by the London General Omnibus Company on Friday, December 1, with a view to forming a "Safety First" Campaign Council for the Metropolitan area. Mr. Blain, the Operating Manager of the London General Omnibus Company, and the originator of the Conference, explained that the movement had its origin in a general desire to promote safety in the streets even before the present darkening took place. The present conditions, however, make the movement especially welcome, and it is not surprising that at the meeting most of the speakers referred to the anomalies in the treatment of lighting in different districts.

There are many different aspects of the subject to be considered. In addition to the question of accidents, there is the choice of methods of dimming the lights which will waste as little gas and electricity as possible. There is also the question of accidents, referred to above. And there is also the very important consideration that the mere slowing down of traffic (in some streets to a walking pace) is, especially at busy times of the day, a great economic loss.

It is evident that the greatest measure for the safety of the streets would be the more scientific darkening of the lights. One undesirable feature of the present arrangements, to which attention was called in the discussion of the Society in 1914, is the extreme "patchiness" and uneven distribution of light, giving rise to severe contrasts of light and darkness. There seems reason to believe that this inconvenient effect has not been deliberately sought for any purpose, and that it is merely the accidental result of the crude methods of shielding the lights now being employed. One of the first points to receive attention in a scientific inquiry would doubtless be the elimination of these severe contrasts in light and shade, which are distracting alike to drivers and pedestrians, and are probably not desirable, as forming distinct marks on the roads when viewed from above. The great variety in method prevailing in different districts apparently arises through the fact that a number of different authorities are concerned with the matter, whose directions are often more or less conflicting. In addition, it would appear from the results that the actual measures

taken are often decided by people who have little experience of lighting problems, and do not appreciate the great difference in convenience occasioned by apparently small variations in procedure in dealing with public lamps.

There have been many unprecedented "linking up" measures, many of which would have been considered impracticable in peace time. Now that the darkening of London has been experienced for over two years, is it not time for a comprehensive inquiry to be made, and for the establishment of a central authority to deal with the matter, taking into account *all* the various aspects of the matter, and bringing about great uniformity in the measures taken throughout London and possibly throughout the entire country? I believe that in this way it would be possible, not only to get better results from the standpoint of the public safety, but to make a very considerable saving in gas and electric consumption. Many of the present methods, which involve darkening almost the entire surface of the globe of a powerful lamp, are most unscientific and uneconomical, and at present there is apparently no body whose duty it is to see that better methods are adopted.

Gas and electric supply companies are, to a great extent, tied by their existing contracts, and neither they nor the Borough Councils are inclined to embark on rearrangements of lighting systems which may afterwards be vetoed. They are also perplexed by their efforts to meet the wishes of various authorities, some of whom consider the interests of traffic, others economy in lighting, others only precautions against hostile aircraft, but none supplying a definite specification stating how *all* these requirements can be most economically and efficiently met.

Our Society, which numbers amongst its members engineers concerned both with gas and electric supply, makers of lighting appliances, and experts in touch with various Government Departments, and which has made a special study of lighting problems and the compromise between different aspects of lighting which they involve, should be in a particularly favourable position to give assistance in this matter.

#### THE LATE MR. JOHN HEBB.

THE death of Mr. John Hebb, F.R.I.B.A., at Brighton last month, in his 83rd year, removes one who was formerly a prominent figure in architectural circles. Mr. Hebb was articled in the 'fifties to the late Edward T'Anson of Laurence Pountney Hill, E.C., and remaining with him in later years assisted in carrying out many of his designs. Later he joined the staff of the Metropolitan Board of Works, and on the dissolution of that body and the creation of the London County Council filled the position of Chief Assistant Architect, and occupied for a time the position of Acting Superintending Architect, retiring on a pension some fifteen years ago.

A man of very considerable culture and attainments, Mr. Hebb numbered among his friends many members of the artistic and literary world of the Victorian era, the names of James McNeil Whistler, George Du Maurier, and William Morris occur amongst others. For many years he was a most active member of the Society for the Protection of Ancient Buildings, of whose objects and aims he was an enthusiastic supporter.

THE Lord Provost's Committee of Edinburgh Town Council last week had before them a motion by Mr. Fraser to consider the provision of housing for Rosyth workers. The committee agreed to recommend to the Council to approach the authorities with regard to the use of ground owned by the Corporation as a site for house building. Mr. Fraser stated there were 74 acres of ground on the Gorgie estate on which they could provide 2,235 houses in three-storey tenements. On Balgreer estate they could erect 200 or 300 houses. Both sites are well served in the matter of railway facilities.

#### LAND PURCHASE IN IRELAND\*

By Mr. G. F. STEWART.

THE purchase of land in Ireland is now practically confined to the operations of the two great Acts of 1903 and 1909, under which more than half of the estimated agricultural land of the country has passed or is passing into the hands of the occupying tenants. In comparison with the activity of these two statutes all previous Land Acts may be considered as being either dormant or dead. But it is impossible to understand clearly even the chief functions of the Wyndham and Birrell Acts (as these are popularly called) without having some idea of the main provisions of their predecessors. Half a century ago there was one broad difference between the condition of the English and Irish tenant farmer. As a matter of practice the English tenant would not dream of taking up a farm without suitable farmhouse and outbuildings, without the necessary equipment of roads, fences, gates, &c. In Ireland the custom was different. Such things were described as "improvements."

And in the majority of cases the tenant had to construct and keep these essentials in repair for himself, and when he had done so his landlord could, if he were so minded, raise the rent of the farm so improved; on the other hand, there were many cases where the landlord spent very large sums both on buildings and in drainage and fencing for the benefit of his tenants, charging them either nothing at all or else a very small rate of interest on the outlay. Still the tenant was, at any rate legally, at a disadvantage as compared with tenants in this country, and it was unfortunately the interest of certain persons to exaggerate and emphasise this disadvantage. The great landowning families were, as a rule, above taking unfair advantage of their legal position. But unfortunately there was a distinct number of owners to whom this remark does not apply, men who had bought their estates perhaps through the Encumbered Estates Court as a pure financial speculation, or men who were desperately embarrassed themselves and were almost driven by circumstances to apply the screw to their tenants. As against these the tenant was practically without legal protection.

This was the state of affairs which led to the first important Irish Land Act—that of 1870. It gave compensation for disturbance and loss of improvements; but it was hedged round with many restrictions and exceptions, and was largely inoperative. It paved the way, however, for the Act of 1881, which for the first time completely recognised and secured the tenant's interest in his holding. It gave him fixity of tenure at a fair rent—or, as some prefer to call it, a judicial rent—estimated by an independent court, the Irish Land Commission, which was established for that purpose. The rent so estimated was fixed for fifteen years, after which it could be brought up again for revision for a second similar term, and before the end of the century over 328,000 judicial rents had been fixed for a first term, and over 52,000 for a second, the average reduction from the original rents being 20.8 per cent. in the former case, and 22.4 per cent. in the latter.

So heavy a fall in landlord's incomes naturally inclined many of them to consider favourably any method of selling their interests in their property. Some progress in this direction was made by both the Acts of 1870 and 1881, which provided machinery for advancing a *portion* of the purchase money to tenants desirous of buying out their holdings. For various reasons, however, only about 1,600 tenants availed themselves of these provisions, and it is to Lord Ashbourne we owe a debt of gratitude for the beginning of land purchase on the larger scale. He was the legal parent of the Act of 1885, under which the Land Commission was for the first time empowered to advance the entire purchase money of holdings, subject to the retention of

\* Extracts from the Presidential Address read before the Surveyors' Institution.

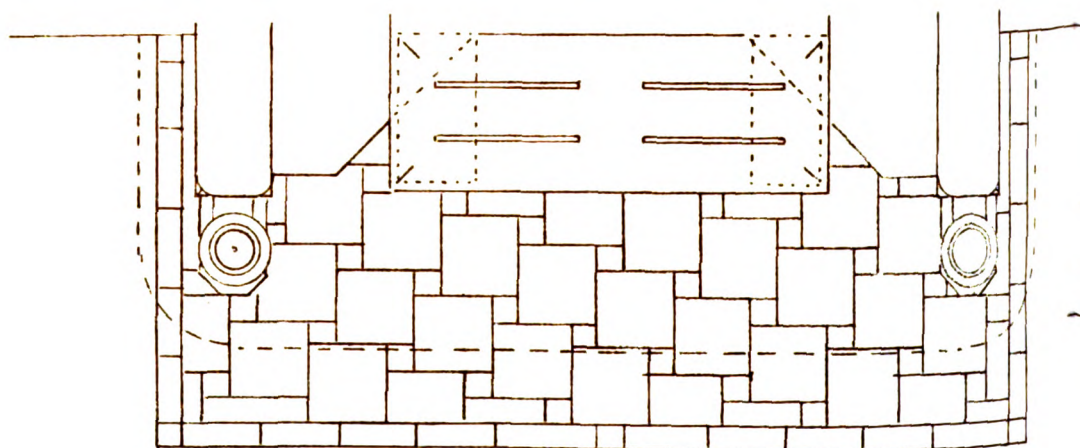




A Country House  
Fireplace in the  
Hall



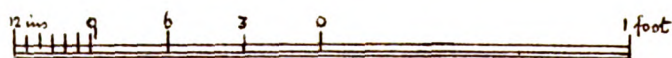
Elevation



Plan

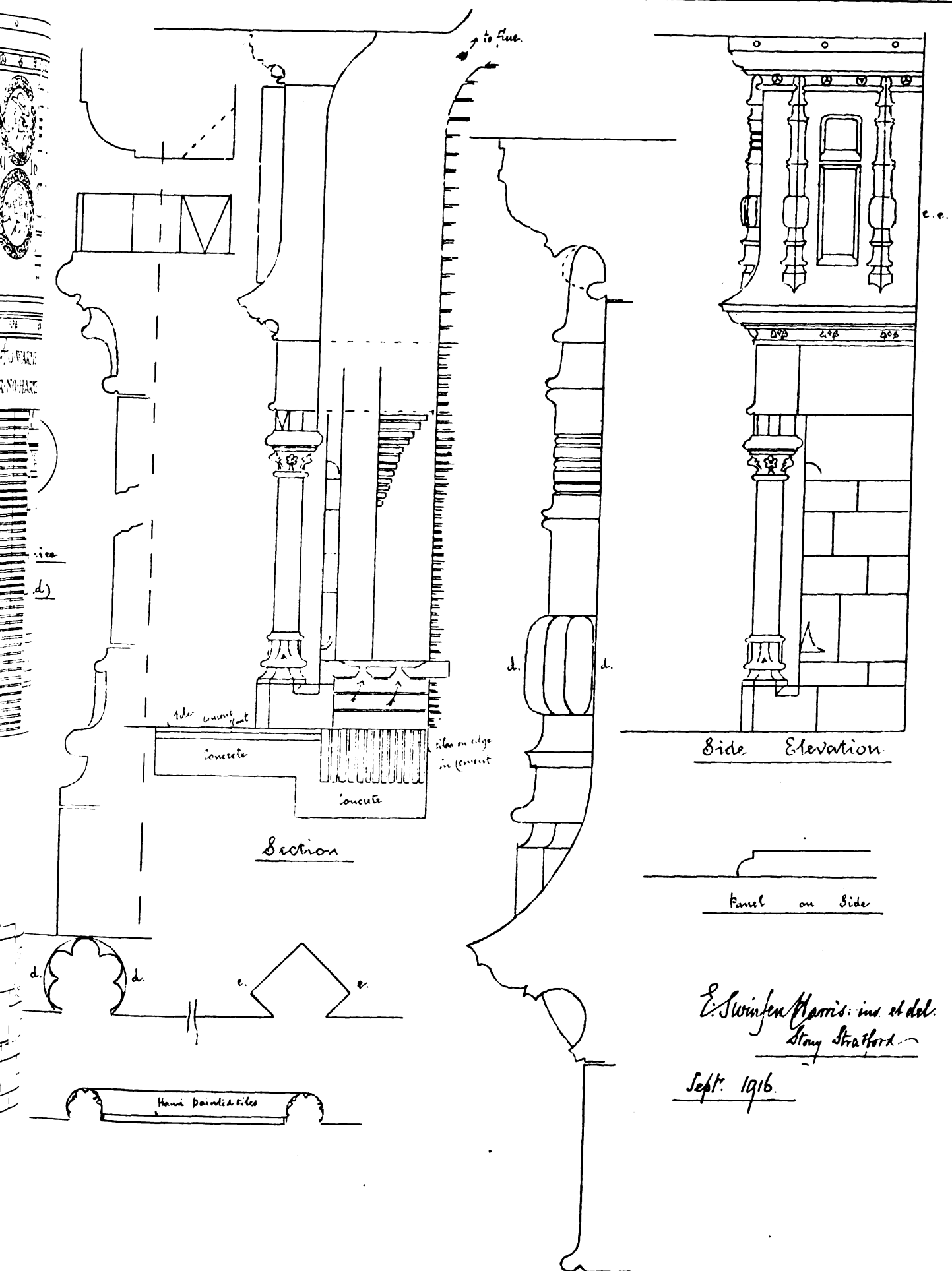


Scale for Elevations & Section



Scale for Details

Sept. 22nd 1916.



Side Elevation

Panel on Side

E. Swinfen Harris: ins. et del.  
Stony Stratford

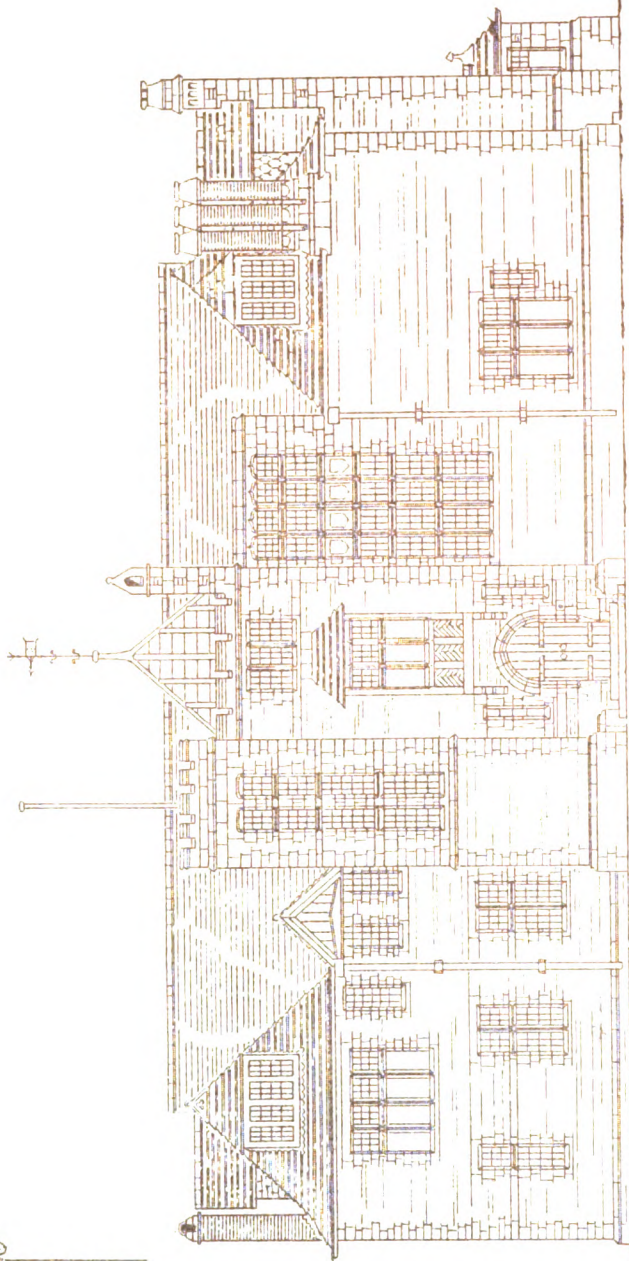
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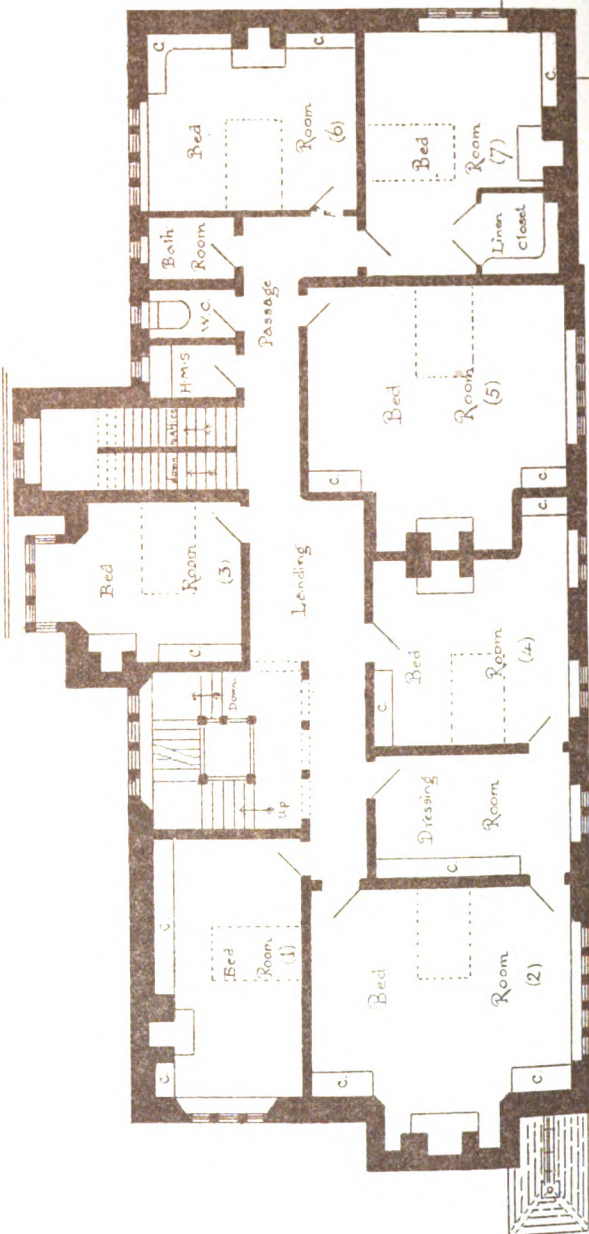




# Douglas House



Entrance Front

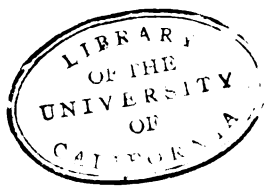


Chamber Plan

*E. Livingston Harris: in sketch.  
J. May: Sketched  
Aug. 1916.*

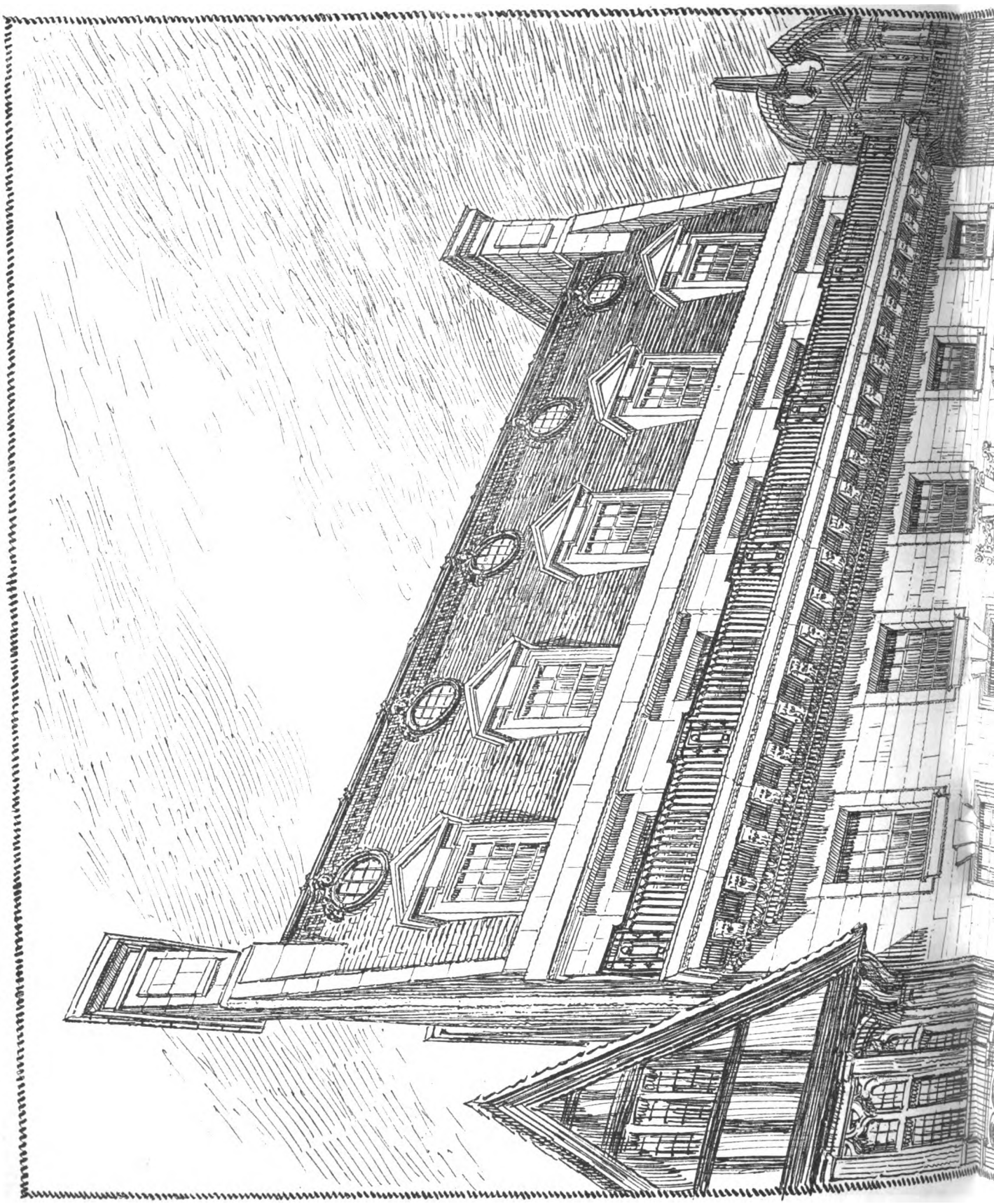




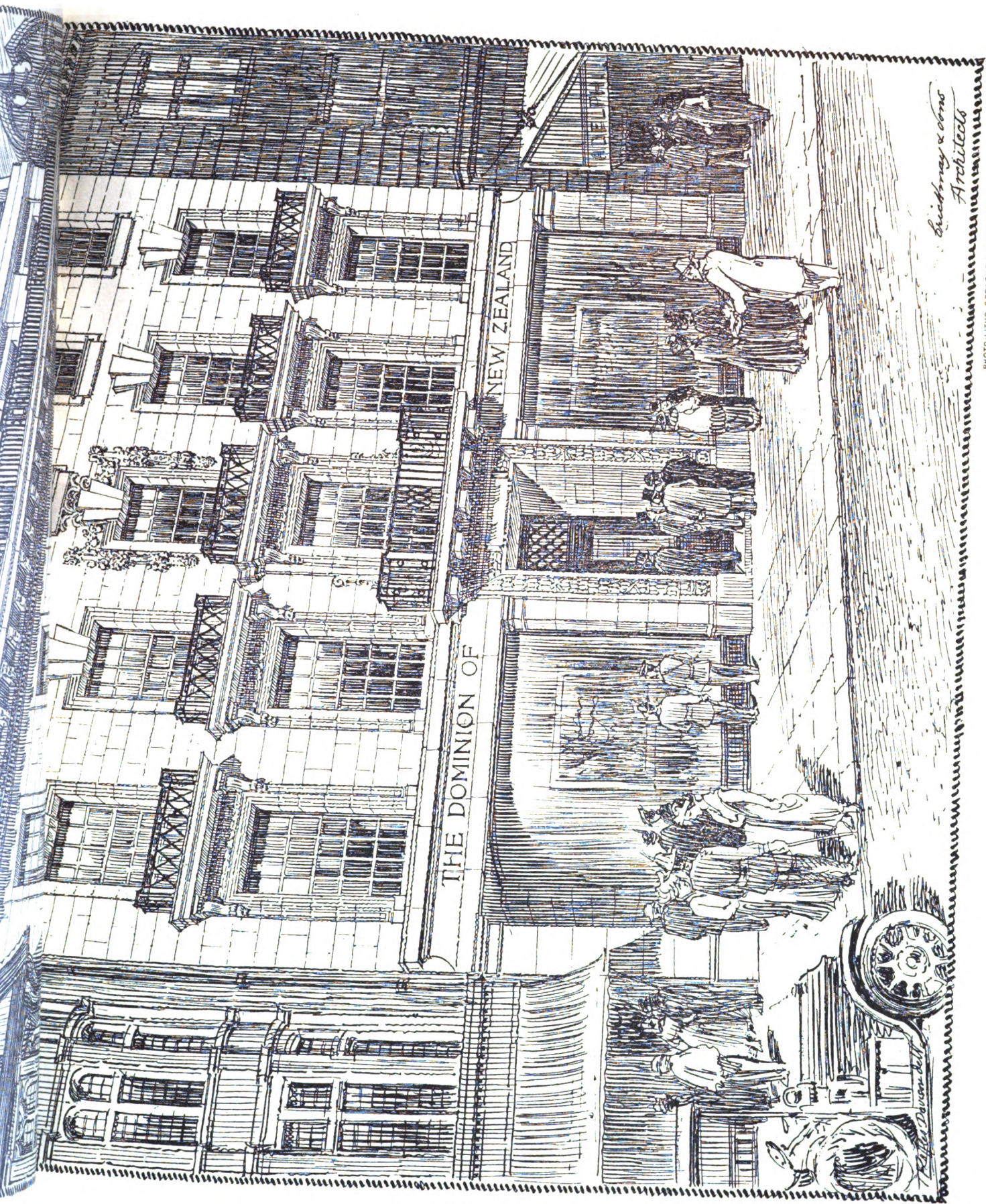






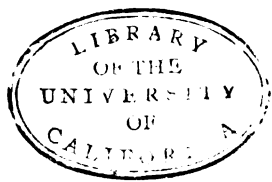






THE DOMINION OF NEW ZEALAND .. NEW GOVERNMENT OFFICES STRAND W.C.







one-fifth as guarantee deposit, to be drawn on if the tenant failed in paying his annuity. This retained portion was released to the vendor when the tenant had repaid a similar amount by means of the sinking fund included in his annual instalment. The annuity wiped out the original debt at the end of forty-nine years, and the tenant became free of all further liability on that head. Under the original Ashbourne Act and three small amending Acts which were subsequently passed, advances amounting to nearly £10,000,000 were made to 25,367 tenants for the purchase of their holdings.

The next two Acts—the “Balfour” Acts of 1891 and 1896—are noteworthy chiefly in their financial aspects. Up to this time the landlord had received his purchase money in cash; he was now to be paid in a guaranteed  $2\frac{1}{4}$  per cent. Land Stock, which he could exchange, if he chose, for Consols. The landlord was freed from responsibility for the due performance of the tenant's contract, while, by the second of these two Acts, the tenant obtained periodic reductions in the annuity, which, however, he had to pay for a correspondingly longer term. Under the Balfour Acts 46,834 holdings were purchased by occupying tenants for a total purchase money of £13,401,226.

In the year 1902, at the instigation of Mr. Wyndham, then Chief Secretary for Ireland, an inquiry was made into the working and results of the land purchase system and a report presented to the House of Commons, which showed clearly the general success of the Land Acts and the reasons for their occasional failure. Upon this report and the results of a round table conference promoted by Sir Horace Plunkett, and attended by representatives of both landlords and tenants, the Act of 1903 was largely based. It secured to the tenant a reduction in the rate of his annuity to  $3\frac{1}{4}$  per cent. from the 4 per cent. of the Balfour Acts, while, to bridge the gap between what the tenant was willing to give and the landlord could afford to take, the Government allowed the vendor a bonus of 12 per cent. on the amount of the advance. All payments were to be made in cash, and the sale of “estates” through the Estates Commissioners was substituted for that of separate holdings through the Land Commission proper, of which, practically speaking, they form a branch.

A word of warning must be said against interpreting the word “estate” in its usual everyday sense. In several instances the Land Acts have placed technical meanings upon common phrases, such as “fair rent,” which means a rent which the Land Commission considers fair. So here an estate does not necessarily mean a landlord's entire property, or even all the lands he owns in a particular county or district. A “separate estate” under the 1903 Act is what the Estates Commissioners think fit to declare to be such, and may be anything from a single holding to a considerable fraction of a county.

Up to the 31st March, 1915—the latest date to which full figures are available—£52,125,236 was advanced in 5,761 estates for the purchase of 141,022 holdings, and about 2,000 estates representing advances amounting to £19,966,101 still remained to be dealt with. The Commissioners had purchased 755 estates for £7,859,891 to re-sell to approximately 27,000 tenants; and the Congested Districts Board had bought 231 estates for £2,517,542 to re-sell to 13,000 tenants.

The Evicted Tenants Acts, 1907-8, were more political than economic in origin. They enabled the Estates Commissioners to acquire land compulsorily for the reinstatement of evicted tenants, and 91 estates were so acquired for a purchase money of £318,640.

There is little doubt that sooner or later practically all the saleable land in Ireland would have been dealt with under the Act of 1903 if the terms which had proved acceptable to both landlord and tenant had remained unaltered. But unfortunately the terms did not remain unaltered. The rate of bonus was subject to revision every five years, and towards the end of that

period it became evident that on the 12 per cent. basis a much larger sum would be required than the £12,000,000 provided by the Act. The Treasury accordingly reduced the rate to 3 per cent. This was a serious matter for vendors, and put the first check on the operations of land purchase. The second came from a different quarter. The financial provisions of the Wyndham Act were modelled upon those of the Balfour Acts already referred to; loss incurred in the flotation of stock to provide the necessary funds fell, in the first instance, on a special Development Grant, and when that was exhausted upon the Guarantee Fund, and thus upon the ratepayer. By 1909 the Development Grant became exhausted, and to finance even pending purchase agreements would have required an annual sum of about a quarter of a million pounds sterling to be drawn from the Irish ratepayer. In these circumstances Mr. Birrell introduced his Land Act of 1909. By it the Treasury assumed the burden of the loss incurred by the flotation of stock, while as to all agreements entered into after the passing of the Act the tenant's annuity was raised from  $3\frac{1}{4}$  per cent. to  $3\frac{1}{2}$  per cent., and the vendor was to be paid in 3 per cent. stock instead of cash.

The raising of the annuity, the alteration in the bonus, and the change from cash payment to stock all combined to discourage further sales—a state of affairs which was made still worse by the outbreak of war and the fall in “gilt-edged” securities, 3 per cent. Land Stock being practically unsaleable. Out of 2,093 estates lodged under the 1909 Act up to March, 1915, 1,437—or more than two-thirds—were residues of estates dealt with under the Act of 1903 and which, presumably, the vendors were anxious to get off their hands to avoid the expense and trouble of collecting rents from a few isolated holdings. Operations under the Act of 1909 in the first six years of its existence were less than one-eighth of those that took place under the 1903 Act in a similar period.

To summarise the results of the various Land Acts to the present day: Under the Acts from 1870 to 1896, £23,894,765 was advanced for the purchase of 73,809 holdings comprising 2,508,937 acres; under the Acts 1903-1909, on 31st March, 1915, £68,859,962 had been advanced for the purchase of 208,139 holdings comprising 6,906,667 acres; and 102,618 holdings comprising 3,237,428 acres, and requiring a purchase money of approximately £25,300,000, for which purchase agreements had been lodged, still remained to be dealt with. The total land in Ireland valued as agricultural is 18,739,644 acres, of which 12,653,032, or nearly two-thirds, have thus come under the operation of the Land Acts. The price paid for holdings vested under the 1903 Act averaged 22.4 years' purchase of the rent, and for those vested under the 1909 Act 20.3 years' purchase, while the annuities represented a reduction from the rents of 27.8 per cent. in the former case and 30.7 per cent. in the latter.

The Land Commission have done a very great work and they have had great difficulties to overcome. But the delays might have been lessened, and that would have meant an enormous saving to all concerned. They are unreasonable in cutting down the advances outside the “zones” to a minimum figure, in many cases far below what the tenant who occupied and knew the land had voluntarily agreed to pay. And they insist on the vendor carrying out large improvement works which formed no part of the bargain with the tenants and which were never contemplated when the purchase price was agreed upon.

The tenants have undoubtedly gained enormously. They have become fee simple owners of their farms subject to terminable annuities, not exceeding on the average about half the rent they used to pay before the Land Acts came into operation. They have an absolute right of sale, and though a mortgage for more than ten times the new annuity is illegal, there is no limit to the price that may be obtained for their interest. The



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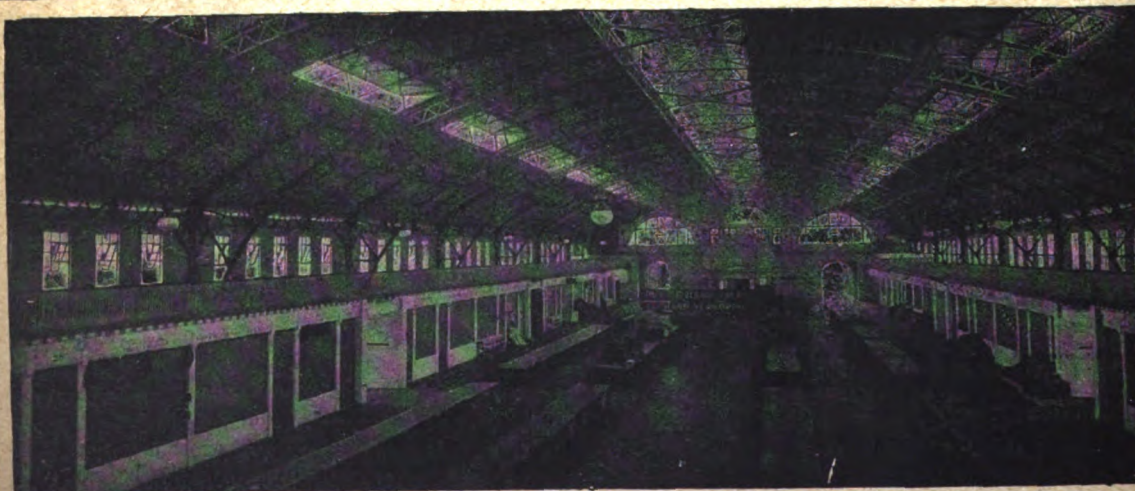
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tenants have most undoubtedly improved their dwelling-houses, offices, and farms generally. Except in the case of the very smallest tenant, to whom the gain of a reduction in his rent meant only a pound or two, while the loss of his former landlord's assistance meant a great deal more, none of the farmers regret having purchased. They are now the real owners of the country, as was pointed out to them on many recruiting platforms, and if they have not yet risen to a full realisation of their position and responsibilities, it is to be hoped they may do so in the not distant future.

What the tenants have gained the landlords have to a large extent lost. The State has, of course, borne a part of the financial loss, but the greater part of it, as well as all the incidental losses, have fallen upon the landlord. This has forced many of the smaller landowners to shut up or sell their country houses. The loss of the families thus expropriated is a very real one for a country like Ireland. The men did their duty as magistrates and country gentlemen in their district, the ladies exercised a kindly and benevolent influence, and the whole country is the poorer for their absence.

The third and last class affected are the *Land Agents*. It is easy to see that this class is being wiped out, except in the case of those who manage town property, or land which for some exceptional reason does not come within the Purchase Acts. Very few younger men now think of entering the profession, and the elder men already in it would have been great sufferers but for the generosity with which in the great majority of cases the landowners treated them.

The loss of a body of educated business men accustomed to responsibility will be a loss to Ireland.



[The Editor will not be responsible for the opinions expressed by Correspondents.]

#### Mr. Joseph Pennell at Munition Works.

SIR,—My attention has been drawn to Mr. Pennell's letter in the current issue respecting my notice of his drawings at munition works. And I rubbed my eyes as I read, and I rubbed them again when I finished reading. Then I turned my attention to my notice of those drawings; and after reperusal, I renewed the rubbing of my eyes, and after reperusal, I renewed the rubbing of my eyes, until the very soreness resulting forced me to desist.

For, Sir, I was under the impression that I wrote a really nice, a really handsome review. It is not that a conscientious Art-critic sets out to write an amiable or an unamiable notice; no! his object is to place before the public an unbiassed and an unprejudiced view of the works submitted to his gaze.

Still, Mr. Pennell is Mr. Pennell; and if he wants nothing but honey, he shall have it; indeed, if anyone deserves honey, *he* does. And if he really *does* prefer smoke and men's chimneys to Heaven's blue and Nature's trees; if he *does* prefer rolling-mills and workshops to high altars and cathedrals, I will be content.—Yours, &c.,

THE ART-CRITIC.

### BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### BUCKINGHAMSHIRE.

*High Wycombe*.—Foundry, Lindsay Avenue, for Messrs. Broom & Wade.

##### DORSET.

*Poole*.—Additional buildings for the Hamworthy Engineering Co.

##### DURHAM.

*Darlington*.—The Arcade Cinema: extensions.

##### ESSEX.

*East Ham*.—Factory, Sherrard Road: additions for Messrs. G. Sharpless & Sons.

*Walthamstow*.—Factory, Blackhorse Lane: addition for Mr. P. Hooker.

Factory, Blackhorse Road, for Davies, Ltd.

Shop, Lyndhurst Road, for Mr. H. H. Iles.

##### HAMPSHIRE.

*Andover*.—Motor garage, Junction Road, for Mr. A. Burley.

Store, London Street, for the Bowring Petroleum Co.

##### HERTFORDSHIRE.

*Letchworth*.—Factory for the Lacre Motor Car Co.

##### KENT.

*Ramsgate*.—Store, S.E.R. Station, for the Anglo-American Oil Co.

Villa, Whitehall Garden City, for Mr. W. Holbrook.

##### LANCASHIRE.

*Blackburn*.—Premises, Bolton Road, for Messrs. W. Livesey & Sons.

*Bolton*.—"Prospect" Bleachworks: addition for Messrs. T. Ainsworth, Son & Co., Ltd.

Four houses, Ellesmere Road, Hulton, for Mr. P. J. Wolfenden.

Premises, Marsh Fold Lane: additions for Messrs. Wolfenden & Sons.

Store, &c., Crown Street, for Messrs. Farnworth.

*Rochdale*.—Boiler-house, &c., Fishwick Street, for Messrs. T. Robinson & Son, Ltd.

Addition, Woodbine Street, for Messrs. Sidebottoms, Ltd.

Fieldhouse Mills: offices for Messrs. J. Bright & Brothers, Ltd.

*St. Helens*.—Parish Church: rebuilding.

##### NOTTINGHAMSHIRE.

*Mansfield Woodhouse*.—Proposed eight houses, near Old Mill Lane, for Mr. E. Stainforth.

##### SURREY.

*Bagshot*.—Windlesham Park: additions for Mr. Barton.

##### YORKSHIRE.

*Bridlington*.—Shops, Quay Road, for the Hull Co-operative Society, Ltd. Mr. T. B. Atkinson, architect, Trinity House Chambers, Hull.

*Wakefield*.—House, Barnsley Road, for Mr. H. Wade. Sixty-five houses, Alverthorpe. City Surveyor.

#### SCOTLAND.

*Aberdeen*.—The Aberdeen Combworks: addition, Hutcheson Street. Mr. W. S. Boice, engineer.

Electricity Station, Crow Street: extension (£3,700). Mr. Bell, electrical engineer.

Premises, York Street: additions and alterations for Messrs. A. Hall & Co., Ltd. Mr. John Rust, architect.

Premises, South Esplanade East: additions for Messrs. J. Lewis & Sons, Ltd. Messrs. Sutherland & George, architects, 26 Crown Street.

Engineering Works, Ashgrove Road: additions, &c., for Mr. A. Wilson. Messrs. D. & J. R. McMillan, F.R.I.B.A., architects, 105 Crown Street.

The Pontefract Rural District Council recently appointed delegates to attend a conference in London on town planning, but at Saturday's meeting the clerk (Mr. W. Hobman) reported that the Local Government Board had written that in their opinion "there is not sufficient ground for allowing the expenses of delegates to be laid upon the rates at the present time."

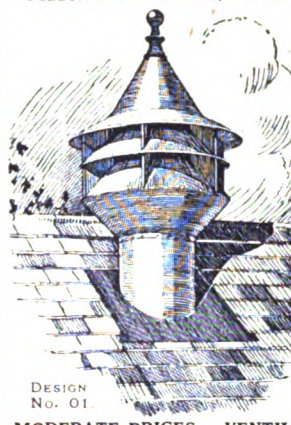


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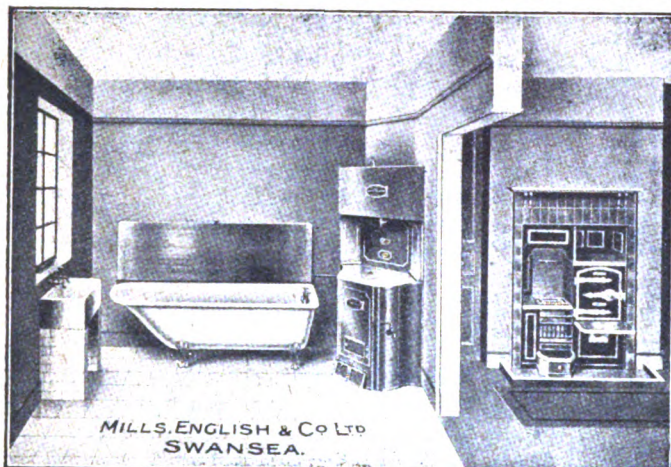
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# THE ARCHITECT

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## FORTHCOMING EVENTS.

Wednesday, January 3.

Institution of Sanitary Engineers, Caxton Hall, Westminster:  
Presidential Address, 7.30 P.M.

## DRAWINGS OF INDIAN ARCHITECTURE AT THE R.I.B.A.

THE drawings by Mr. E. C. Henriques, Government of India Scholar in Architecture, 1913-1915, now on view at the Galleries of the Royal Institute of British Architects, are well worthy of examination as putting before us in measured drawings to scale, plans, elevations, sections, and details, some of the finest examples of Indian architecture of about the fifteenth, sixteenth, and seventeenth centuries, of which the acquaintance of most of us in this country is limited to photographic records. It is therefore of interest to be able to read in architect's language the handling of material which has produced those remarkable works of architecture, which even those who do not enthusiastically admire must admit to be worthy of respect and consideration.

Mr. Henriques has selected as the objects of his study examples chiefly of the Saracenic or Mughal era in the architecture of India. From the period of the Mughal dynasty at Agra and Delhi in the north, 1526-1758 A.D., he has chosen a building erected in the reign of Jahangir, 1605-1628, the tomb of I'timād-ud-daulah, at Agra. Of this Fergusson tells us that it was erected by Nūr-Jahān, in memory of her father, who died in 1621, his tomb being completed in 1628. It is situated on the left bank of the river, in the midst of a garden surrounded by a wall measuring 540 feet on each side. In the centre of this, on a raised platform, stands the tomb itself, a square measuring 69 feet on each side. This is two storeys in height, with a central tower, and at each angle is an octagonal tower or minaret, surmounted by an open pavilion.

The proportions and general design are far from perfect, and the real merit of the building lies in its material, which is wholly of white marble, adorned throughout with mosaic in "pietra dura," the first, apparently, and certainly one of the most splendid examples of that class of ornamentation in India. In detail, however, it is one of the least successful specimens of its class, showing a less skilful handling by native Hindu craftsmen of the newly introduced method of decoration than other examples of the succeeding reign, that of Shāh Jahān, 1628-1658. The patterns do not quite fit the places where they are put, and the spaces are not always those best suited for this style of decoration. But, on the other hand, the beautiful tracery of the pierced marble slabs of its windows, the beauty of its white marble walls, and the rich colour of its decorations make up so beautiful a whole that it is only on comparing it with the more experienced works of the reign of Shāh Jahān that we are justified in finding fault.

In the west of India Mr. Henriques has studied two notable examples of mosques at Champanir and Ahmādad in Gujerat. Both of these may be described as Hindu-Saracenic, as, though erected for Mughal rulers of the Ahmād Shahi dynasty, 1396-1572, they have clearly been fashioned by Hindu craftsmen.

The Jāmi' Masjid at Champanir, of which Mr. Henriques has measured the front entrance, was erected by Mahmūd Begarah when he made that city his capital in 1484, and was finished in 1508. Fergusson says it may fairly be regarded as architecturally the finest in Gujerat. It measures outside 178 feet from north to south, by 216 feet from west to east. The court in front had open arcades on three sides, now much ruined, and was entered by minor porches on the north and south, with a large and richly-carved one on the east front.

The mosque itself is in tolerable preservation and of large size, being 169 feet 6 inches in length by 81 feet inside the walls. It is covered by three rows of domes, four each in the front and back rows and in the middle three, disposed opposite the spaces separating the domes in the other rows, thus providing for seven mihrābs or quiblas in the west wall. There are five arched entrances, the central one being the loftiest and double the width of the others. The chief interest of this mosque lies in the exhibition of the harmonious fusion which by this time the builders had achieved of Muhammadan features with Hindu structure and detail.

The second of the Gujerat mosques to which Mr. Henriques has given his attention is the Rām Sipari Masjid at Ahmādad, one of the smaller mosques in that city, but at the same time one of the most beautiful, the minarets especially, 50 feet high, which, in Fergusson's opinion, not universally admitted as correct, even surpass those of Cairo in beauty of outline and richness of detail. Fergusson calls it "the most exquisite gem at Ahmādad both in plan and detail." It was completed in 1514, three years after the death of Sultan Mahmūd Shah Begarah, being built by one of his queens in memory of her son, Abu Bakr Khan, the heir-apparent, who was put to death by the Sultan's order, for having been caught in an act of misbehaviour. The building is of particular interest architecturally as being one of the later Gujerat mosques which dispense with arched construction entirely, and revert to the pure Hindu tradition of building.

The Rauza or mausoleum of Ibrahim Adil Shah II., at Bijapur, in the south, though described by Mr. Henriques as Saracenic, is really remarkable for the predominance of its Hindu characteristics in building. Following the Turanian custom of each king building his own tomb, it was erected during the reign of Ibrahim, 1580-1626, who, although a Mughal ruler was a liberal patron of Hindu culture, especially of music, and even fell under the suspicion of taking part in Hindu religious rites. This mausoleum and its accompanying mosque were the first Muhammadan buildings in which the bulbous or lotus-leaf type of dome is used on a large scale. It may be considered as a development of the lotus-leaf dome of the Hindu vimāna, with the improvement that attention was concentrated on elegance of contour rather than on richness of sculptured decoration. Certainly the composition of this graceful dome rising on the central main building, above the flat-roofed four-square enclosing corridor with its graceful minarets at the angles, is quite delightful. In the Bijapur domes occurs a new structural idea in the adaptation of Persian pendentives, repeating internally the Hindu symbolism of the Mahā-padma, and making the transition from square to circle on plan. This, however, is not visible from within the main apartment, which is covered with a remarkable curved flat ceiling, constructed with stone ribs and slabs set edge to edge, only supported by iron clamping and the strength of the excellent Indian mortar.

Thus it will be seen that all these four notable build-

ings which Mr. Henriques has studied, though Mughal in their inception and embracing Saracenic features in their plan and, to some extent, their construction, bear unmistakable impress of the traditions of Hindu craftsmanship.

From Kotah, in Rajputana, Mr. Henriques has selected for his remaining studies two examples of purely Hindu structures, royal cenotaphs from the Mahāsali. Quoting from Fergusson, Mr. Henriques says: "In Rajputana every native capital has its Mahāsali or place where the sovereigns of the State and their nearest relatives are burned with their wives." The smaller of those measured by Mr. Henriques, which he describes as "A Royal Cenotaph," has a rich octagonal dome carried on light pillars of purely Hindu character. The other is the cenotaph of Maharāo Durjansal, which also has its dome on eight pillars enclosed in a square, with porticos of two pillars on each side, thus more nearly approaching the richness of the cenotaph of Sangrām-Singh at Udaypur with its fifty-six pillars.

### NOTES AND COMMENTS.

THE endeavours of the Da Vinci Society to arouse the sympathies of the civilised world in protest against the bombing of historic buildings and destruction of works of art in Italy have been considered by the Parliamentary Art Committee, under the chairmanship of Lord Plymouth, and the committee have naturally expressed their abhorrence of such acts by belligerent forces. Far more effective, however, than protests will be the realisation by the Huns that the Allies mean what they say, when, in the words of Mr. Lloyd George, they express their determination to exact "complete restitution, full reparation," backed up by the latest lesson inculcated by the gallant French army at Verdun of their ability to obtain what they demand.

The exclusion of art, as a subject, from the University curriculum was referred to at the presentation of diplomas for drawing and painting, and for design and decorative art, to the students of Glasgow Art School.

Mr. F. H. Newbery, who spoke of the academical value of the diploma, said that until the universities of Scotland followed the example of the universities of England and included the theory and practice of art as a subject in the calendar, they were to that extent lacking in educational equipment and in the fullest academic power. The absence of this recognition on the part of the universities was the reason of the meeting that day. The Glasgow Art School was a central institution, and as such was the university of art for Glasgow and the West of Scotland. The diplomas to be presented stood to those who were to receive them exactly as did the degree to the university student mark the newly made university graduate. In other words, that school was a faculty of the fine arts. Mr. Newbery also mentioned that 400 students had left their places to become soldiers.

Sir John Burnet also referred to the attitude of the universities to art. It had, he said, been a source of wonder to him, only he had remembered there was a difficulty. It was not an ordinary function of intelligence to understand art. They had all lived for successive generations in the presence of the most perfect beauty. How little did they know about it; how little had it affected them. Why, therefore, should they as art students, who in their highest flight of fancy were but interpreters of that beauty, complain if the public did not see their attempts? He thought it would come, but he did not think they should slacken their efforts one iota in waiting for it. In art, as in most things, it was the individual man and woman who conquered for his fellows. The first strong man or woman who had a truth to tell and succeeded in telling it and thereby arousing the interest and enthusiasm of their fellow-men, that man or woman might put the school in the university circle in half an hour. The artists he knew who had gone to fight were

reported in every case as giving the services of highly intelligent men fearless in doing their duty, willing to lose their lives in "doing the picture," because it was a terrible and tragic picture. Their brightness and cheeriness when they were relieved from the actual struggle could only be accounted for by the enthusiasm of the cause blotting out the terrible incidents which they had to pass through. They were able as artists to look at the result to be attained, forgetting altogether the suffering that might have been caused in attaining it.

In the "Revue Franco-Etrangère" the leading article, dealing with the Channel Tunnel, is contributed by Sir Francis Fox, who, after describing the engineering details, says:—

"It is hardly necessary to call attention to the enormous value of such a tunnel had it existed during the two years of this great war. It defies all calculation as to what the saving in suffering and in cost would have been. Every soldier, every horse, every pound of ammunition, all the guns, the vehicles, and nearly all the food have had to be carried across the Channel, at prodigious expense. The armies of labourers in the docks of both countries, the long lines of ships carrying and discharging horses, timber, petrol, fodder, coal, coke, and rations would not have been required. The military gain of being able to transport, without change, troops from our great camps, material of war from our factories, and to bring back the sick and wounded, with the minimum of suffering and fatigue, would have been beyond all measure, while the release of our Navy from the arduous task of protecting the Channel waterway would have represented a saving probably of scores of millions sterling. It is, therefore, quite safe to say that the entire cost of the tunnel—£16,000,000—would have been paid for over and over again."

The report of the School Medical Officer with regard to the Open-air School at Cambridge states that the total number of children who attended was thirty. Seventeen attended for the whole period, July 24 to November 10. Eight were girls and nine boys. Of the thirteen who attended for shorter periods, eight were girls and five boys. Ten children had been under the care of the Tuberculosis Officer, one of them since July 1914, and may therefore be considered to have been living a more or less open-air life as far as home circumstances permitted. The method of selection excluded those who came from the poorest homes, and the general appearance of the children on admission indicated parental care. It was not expected, therefore, that results of a very striking character would follow a three or four months' course at the Open-air School. That the benefit obtained far exceeded expectations was shown by the records. The eight girls who attended for the whole period showed a total gain of 55 lb., an average gain per girl of 6 lb. 14 oz. The average gain of ten girls at Barnwell (East Road) School of the same age and over the same period was 3 lb. 7 oz., and the average annual gain for all Cambridge girls of the same ages, 1911-14, was 6 lb. 3 oz. The nine boys who attended for the whole period showed a total gain of 40½ lb., an average gain per boy of 4 lb. 8 oz. The average gain of ten boys at Barnwell (East Road) School of the same ages and over the same period was 2 lb. 10 oz., and the average annual gain for all Cambridge boys of the same ages, 1911-14, was 5 lb. 3 oz.

The girls therefore gained in weight exactly twice as much as healthy girls in the ordinary school, and even more than the average girls gained in a year, while the boys gained less than the girls, but considerably more than healthy boys in the ordinary school, and were only 11 oz. short of the average annual gain for boys. Of the thirteen children who attended for shorter periods, seven gained in weight, three did not gain at all, and three lost weight. With the exception of the last three children, the improvement in the health of the children was most marked and perfectly obvious to the eye, and was shown by their improved appearance, colour, plump-



ness, activity, and spirits. One child, in spite of her increase in weight, was considered by the Tuberculosis Officer to be unfit to continue in attendance; the home conditions in this case probably were to blame for this. After the closure of the school the ten children who were under the care of the Tuberculosis Officer were again examined by him, and five were considered to be fit for the ordinary school. The other five, on his advice, had been excluded from school. The remaining children have been passed for attendance at their usual schools, but will require to be periodically seen in case of a relapse.

Mr. David Ronald, a Commissioner appointed by the Local Government Board for Scotland, held an inquiry into the town-planning scheme promoted by the Corporation of Edinburgh for an area of land in the districts of Abercorn, Duddingston, and Niddrie. The scheme extends on the one side from Jock's Lodge to Musselburgh, excluding the inhabited areas of Portobello and Joppa, and on the other side from the main line of the North British Railway Company to the Niddrie policies and farmlands. It is principally situated in the two parishes of Duddingston and Liberton. Colonel Hope, of Messrs. Hope, Todd & Kirk, W.S., Edinburgh, representing the trustees of the late Sir Charles Dalrymple, moved that the Commissioner postpone the inquiry until the end of the war, but this was opposed by Mr. Macmillan, K.C., for the promoters, on the ground that after a *prima facie* case was made out for the scheme it should be taken up after the war. Mr. Pitman, for the Mid-Lothian County Council, suggested that that portion of the county should meantime be left out of the scheme. Mr. Macmillan declined to accept this suggestion. The Commissioner decided to go on with the inquiry, and, having heard the objectors and evidence for the promoters, intimated that he would report to the Local Government Board.

## ILLUSTRATIONS.

### HOUSE AT BEAULIEU.

### SCHOOL AT COODEN BEACH.

THESE drawings showing buildings designed by Messrs. Tubbs, Messer & Poulter were exhibited at this year's Royal Academy Exhibition.

### BENCH ENDS, BURRINGTON CHURCH, SOMERSET.

THESE examples of modern wood carving, designed by Mr. F. Bligh Bond, F.R.I.B.A., show that the West Country skill in that craft is maintained to-day.

At a meeting of the Carlisle Local Advisory Committee of the Control Board a letter was read from the Dean of Carlisle regarding the offer made to the Dean and Chapter of Carlisle Cathedral to restore to them a quantity of ancient carved oak which previously formed part of an attractive decorated scheme at the Wellington Hotel, Carlisle. The beautiful woodwork included the altar rails of St. Mary's Church, then part of Carlisle Cathedral, at which Sir Walter Scott, the novelist, was married. The Dean of Carlisle in his letter stated that there was no suitable place in the Cathedral to deposit the oak, and that as the best portion appeared to belong to St. Mary's Church, the Dean and Chapter declined the Board's offer. Under the circumstances, the Committee decided to offer the oak to the vicar and churchwardens of St. Mary's.

MR. CAMPBELL, the Burgh Engineer of Edinburgh, has prepared a report showing the number of houses vacant in the city which might be made or are suitable for dwellings in the present great scarcity of houses. There are 432 houses of two or three rooms and 906 vacant shops, but about 20 per cent. only of the latter would be suitable for conversion into dwelling-houses of two or three rooms. This would give 180 houses possible from this source. On a review of the whole situation Mr. Campbell says that this would not satisfy the immediate or the early prospective demands for housing within the city. The houses required should be on a reorganised plan to that hitherto followed, exhibiting tenement planning for the working classes at its best.

## BRITISH SCHOOL AT ROME.

THE annual meeting of the British School at Rome was held last week at Burlington House, under the presidency of Professor J. S. Reid, Litt.D., Gonville and Caius College, Cambridge, chairman of the Faculty of Archaeology, History and Letters.

The sixteenth annual report to the subscribers states that the record of the year can in some respects be summed up in a few words. There were few students, and the School had no ordered home, so that from some points of view the year may seem to have been spent in marking time. But the great difficulty of the building is now happily at an end.

In spite of all obstacles, the directing staff in Rome are able to report that the work of the School has not suffered so much as was to be feared. Only two students have been in residence in Rome, but their studies have been fruitful, while the Director (even from the midst of his novel and arduous duties), the Assistant Director, and several former students have been able to contribute in different ways to the progress of the School and to bring it about that there should be no breach of continuity in the School's history.

It is a great satisfaction to feel that the bonds which already united us in friendship with Italy are now infinitely strengthened by comradeship in arms, and that we shall, when this great struggle is over, co-operate in the pursuits of peace with renewed vigour, and with a deeper sympathy and community of feeling. It is a matter for satisfaction, and of good augury for the future, that Englishmen closely associated with our School, the Director, Mr. G. M. Trevelyan, a former member of the Faculty, and students in the recently founded Faculties, have by their work in the British Italian ambulances been brought into close comradeship with the Italians, fighting so gallantly on their northern frontier.

Arrangements are now being made that all the normal activities of the School may be resumed under favourable conditions, and with the happiest auspices, whenever the present great national effort has achieved its aims. It may confidently be added that British students in Rome will receive ample encouragement and help from Italian scholars there. Nothing is more striking than the energy with which Italian directors of museums and of libraries have thrown themselves into reorganisation in spite of their depleted staffs and other difficulties. Special mention should be made of the wonderful library of art and archaeology which Sig. Corrado Ricci is bringing together under the auspices of the Ministry of Fine Arts. This promises soon to surpass the great library at the Institute on the Monte Tarpeo. The removal of the collection of pictures from the Pal. Corsini to the recently recovered Palazzo Venezia is another great work in hand, and the opening of the section of Christian archaeology at the Museo delle Terme is a welcome step towards the desired closer association of classical and early Christian studies. Excavators too have been active: splendid Republican tombs, with portraits intact in their niches, have been discovered at the Villa Wolkonsky, the monument of Enryaces has at last been fully disclosed, and also the early Augustan gate at the Porta S. Lorenzo. All this has happened since last spring.

The formal opening of the School as a whole in its new building cannot take place till after the war; but the library again became accessible to qualified readers on November 15.

The Director, Dr. Thos. Ashby, joined the first British Red Cross Ambulance Unit for Italy in August 1915, and spent the greater part of the year on the Isonzo front, acting as interpreter and in other capacities. His intimate knowledge of Italians as well as of the Italian language enabled him to render valuable service. He has paid occasional flying visits to Rome, and has managed at the front to pass his paper on the Odescalchi Palace, and in collaboration with Capt. Robert Gardner, that on the Via Tarana, for Vol. VIII. of the Papers.

During the Director's absence at the front, the duties of Acting Director fell upon Mrs. Arthur Strong, the Assistant Director. She prepared the library of the new school for the reception of the books and looked after the building generally. She also lectured in the Forum to the Officers of H.M.S. "London," and gave two lectures in the Forum and the Colosseum to the midshipmen of the Admiral's flagship "Queen." Since the opening of the Session 1916-17, Mrs. Strong's chief task has been the reorganisation of the library. At the beginning of November she was able to take up residence at the new school, in the Valle Giulia.

*The Students.*—Mr. G. Douglas Brooks, M.A., of Worcester College, Oxford (Gaisford and Arnold prizeman), lecturer in Greek in the University College of South Wales (Cardiff), holder of the Pelham Studentship for 1916, arrived in Rome early in January and stayed till the first of July. He worked at his special subject, "The History of the Roman Senate in the Third Century," and besides devoting himself to the study of general archaeology and of Roman topography, he gave attention more especially to classical sculpture with Mrs. Strong in the Museo dei Conservatori. To facilitate such work as his, the foundation of Research Scholarships for a term of years (corresponding to those in the Faculties of Architecture, Painting and Sculpture) is much to be desired.

Mr. Ernest Cormier, the second Jarvis scholar appointed by the Royal Institute of British Architects, continued to reside in Rome during the whole of last session (1915-16). After a short journey through the principal cities of central Italy he resumed residence in September, 1916, and hopes to remain till the end of the year. He has continued his series of measured drawings of the Villa Madama (by the liberal permission of the present proprietor, M. Berges). In the course of his work Mr. Cormier has made many valuable discoveries and has been able to make clearer the original plans, never carried out in their entirety, of Raphael and Giulio Romano. It is much to be hoped that his results may be published hereafter in our Papers, with the permission of the Architectural Faculty. In addition to his main work, Mr. Cormier has also devoted some time to making measured drawings of the capital of the Temple of Castor and Pollux and preparatory studies for a restoration of the third century Nymphaeum, popularly known as the Temple of Minerva Medica.

The Gilchrist Student, Mr. J. W. Thomson, of the University of Edinburgh, was unable to go to Rome, on account of military service. His studentship was postponed with the approval of the Gilchrist Trustees.

The Committee have to deplore the loss of three former students of the school: Capt. Guy Dickins, M.A., 1905-13; Lieut. Philip Newbold, B.A. (1910); Lieut. H. G. S. Dorell, B.A. (1913).

*Visitors to Rome.*—In June the new School was visited and inspected by its President, H.R.H. Prince Arthur of Connaught, K.G., who was accompanied by his staff, and by the British Ambassador and Lady Rodd. The school has also been visited by His Eminence Cardinal Gasquet, H.E. Sir Henry Howard, and other distinguished visitors. In respect of visitors to Rome in general, the conditions are changed, but the calls on the staff have not been less. In particular the constant stream of naval and military officers passing through Rome, and keenly interested in its history, has brought a new and inspiring element into Roman life, which should not be without effect on the School and its studies.

*The Library.*—The new building is under the control of the Executive Committee of the School. For reasons, however, the Faculty accepted responsibility for the completion and fitting of the library. They felt that that course was preferable to a postponement for an undefined term, or to an arrangement of the books that had no measure of permanency. They therefore contributed £160 for the erection of the gallery round the four sides of the room, approached by a staircase at

one corner. The space available for the arrangement of the books was thereby doubled. They also contributed the bookcases from the Palazzo Odiescalchi, and supplied others for the gallery. The cost of this latter work will be about £70.

It is of course to be regretted that Mr. Lutyens' scheme could not be carried out in its entirety with the bookcases and other fittings designed by him for execution in oak or Italian walnut. The bookcases now supplied are plain, but they should do effective service until the present crisis is well passed, or until some benefactor is moved to complete the architect's scheme.

The hope expressed in the last Report that the work of the Faculty could be resumed in January proved too sanguine. The many delays in connection with the delivery of the fittings, largely due to the war, and the necessity of giving the building time to dry caused postponements till the end of the summer. On April 1 the building was delivered over by the contractors. In September the Assistant Director began the arrangement of the books.

On November 15 the library was reopened to qualified readers under conditions of excellent promise. The library chamber is a lofty room, measuring some 62 feet by 23 feet, with a fine tripartite barrel vault, built in Mr. Lutyens' most picturesque style. The four high windows, with their leaded panes, enframe beautiful glimpses of the surrounding country almost in the manner of a Japanese print. The upper gallery, referred to above, forms a broad platform at the east end, which is capable of holding tables and chairs for readers, thus affording, as it were, a second or upper library.

*Finance.*—The subscriptions for the year amount to £475 compared with £604 and £728 in the two previous years. The drop is serious, and notwithstanding the difficulties of the time, it is necessary to repeat the special appeal addressed to all who are able to do so, to continue their support at a season of special difficulty.

With the close of the School's tenancy of the Palazzo Odiescalchi, the accounts are to a considerable extent recast, in accordance with the arrangements made for the incorporation of the School. The Government grant of £500 no longer appears among the receipts, and the Director's salary, the rent, and many items of wages, &c., are struck out of the expenditure. The further fact that the School was closed makes comparisons difficult. The general result is that it was possible to provide the cost of the gallery (£160), and the non-recurrent costs of moving the library and making good defects at the Odiescalchi Palace (£59) without material change in the cash balances.

The total expenditure chargeable to the Income and Expenditure Account under the new conditions was £512 and the surplus was £47. Receipts from donations amount to £64 comparing with £227 and £306 in the two previous years. Of this amount £50 is shown as part of the library fund, for the purchase and binding of books.

Purchases for the library amounted only to £29. The total amount previously spent on the library was £1,900 written down to £1,183. The additions during the year make an aggregate expenditure to date of £1,929. From this amount £308 has been deducted for depreciation, leaving a value of £1,120. This does not include the numerous and valuable books received by gift or exchange.

THE death has occurred at Welshpool of Colonel George Albert Hutchins (75), a member of the Institute of Civil Engineers, county surveyor for Montgomeryshire. The youngest son of the late Rev. R. W. Hutchins, rector of East Bridgeford, Notts., the deceased was educated at Magdalen College, Oxford, and had a versatile career, serving in professional capacity in India and South America, editing the "Carmarthen Journal" and publishing articles on tactics and other military subjects. He was a member of the "G" Club, and was an expert shot, winning many trophies at Bisley.

**THE AMERICAN EGYPT.**

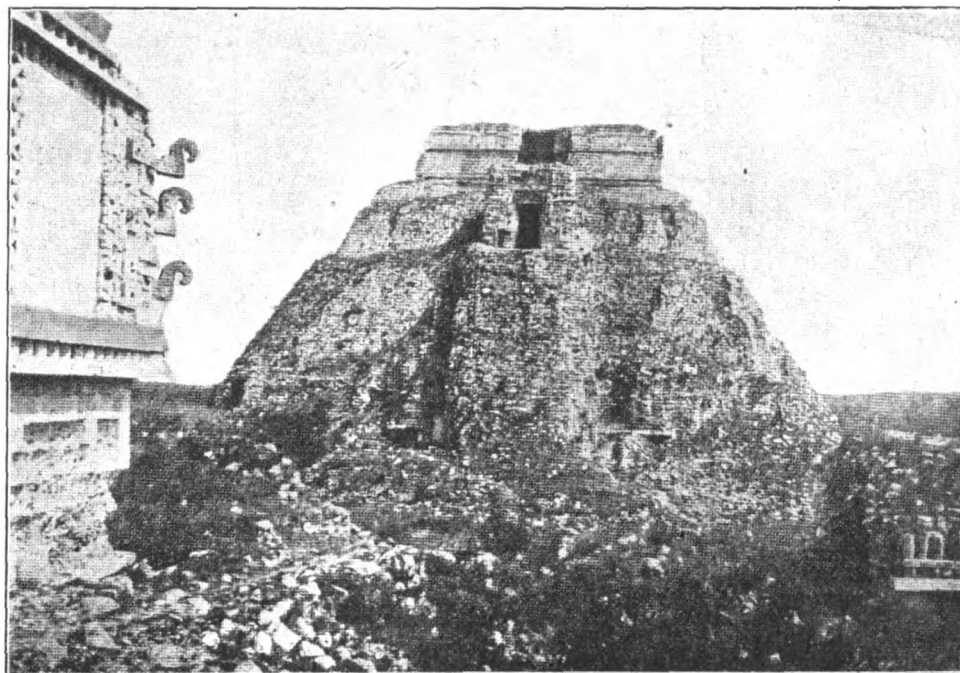
SCATTERED all over the Yucatan peninsula are monuments to a civilisation that flourished thousands of years ago. Just how many thousand nobody knows and scientists differ very materially in their ideas on the subject, says Mr. George Miner in the "Mexican Review." The prevailing belief, however, is that this civilisation was in full swing as late as the beginning of the Christian era. Other scientists assert that the ruins antedate those of Egypt.

Yucatan can well be called "The American Egypt." The ruins of 172 cities, big and little, have been discovered and not a quarter of the territory has been explored, that is, carefully explored, for the tropical verdure makes the finding of them very difficult. You might pass within a hundred feet of a wonderful old temple or pyramid a hundred times and not discover it, so effectively does the jungle screen these crumbling monuments of the distant past and shield them from the prying eyes of this inquisitive and presumptuous age.

While the ruins of Egypt, through pictures and descriptions, are almost as familiar to the average American as New York's famous skyscrapers, those of

in the near future to remove this handicap to would-be visitors. In all probability rails will be laid for a tramway on which mule cars will be run to convey passengers. This will not be a very great expense and will unquestionably do a great deal toward bringing visitors who would otherwise never think of coming. Once make these ruins accessible, reduce the hardship and expense of visiting them to a minimum and let them be known about, and there is no reason why thousands of visitors would not flock to look them over every winter.

There is a hacienda close to both Uxmal and Chichen Itza where accommodation of all sorts can be had. That is, there are rooms in which you can sling your hammocks and kitchens in which the native caretakers can prepare your food. Also there are deep wells from which plenty of cool water can be had. Both of these haciendas are now suffering from neglect on account of the absence from the country of their owners, and so visitors have to shift pretty generally for themselves. It is not out of the bounds of possibility, I understand, that the Government will make some arrangement whereby these two farmhouses, or new ones to be built, will be run so that visitors will be able to get comfortable accommodation.



HOUSE OF THE DWARF, UXMAL.

Yucatan are practically unknown. They are rarely visited, even by antiquarians, while the casual tourist or tripper never gets there. That is easily understood. They are so difficult of access that none attempt the feat who are not very much in earnest about it.

Of the 172 clusters of ruins discovered, two sets represent what were once large and prosperous cities, of about half a million inhabitants each. Doubtless at different times each one of these two cities was the capital of the country.

One of the cities is Uxmal, pronounced "Ushmul," situated in the south-western part of Yucatan, and the other is Chichen Itza, in the eastern part of the State. To reach either, the first step is a long railway journey from Merida, and when you reach the point of debarkation from the railway train the real trouble begins.

One is six miles away through the jungle and the other eighteen. In both cases the road leading out is little better than a trail and without question the roughest road that a wheeled vehicle was ever pounded to pieces on. No attempt has been made to level it. The trees were cut down, the underbush cleared away and they called it a road.

The Government is now contemplating taking steps

As the Government does not approve of confiscation it has been almost impossible to do anything of the kind up to the present.

To my mind the most interesting ruin of all is "The House of the Dwarf" at Uxmal. It is a pyramid, 300 feet high, with a temple on top where the priests made human sacrifices. The steps on one side are fairly well preserved. A double chain is run down them so that it is possible to reach the top if you have a cool head. Once there you crawl through a hole knocked in the temple wall and come out on a platform which was the sacrificial altar.

This hole has a history. It was made some fifty years ago, when Carlotta, Empress of Mexico and consort of the ill-fated Maximilian, visited Uxmal. Through it crawled the proud Hapsburg princess to gaze over leagues of her new domain, once a populous city, now a dense forest. A year later her husband was executed, while she is to-day old and mad and practically a prisoner in a Belgian castle.

On that platform the priests stood and with knives of flint cut out the hearts of living victims and held the gruesome objects aloft, still throbbing, for the populace below to gaze at. In the great quadrangle at the foot



of that side of the pyramid the inhabitants of the city gathered to watch these festal doings. Fifty thousand people could stand in it. Around this huge court runs a palace, two storeys high and beautifully carved, which was the home of the nuns, for whose special delectation these sacrifices were made. The nuns were the aristocrats of ancient Maya society.

On all four of the inner sides of this palace are carved two huge snakes, whose bodies are entwined as they twist around the structure. These snakes have human heads and tassels for tails. In all the ruins the carvings are of the same peculiar design. The patterns of the borders and the general ornamentation strongly suggest the Egyptian.

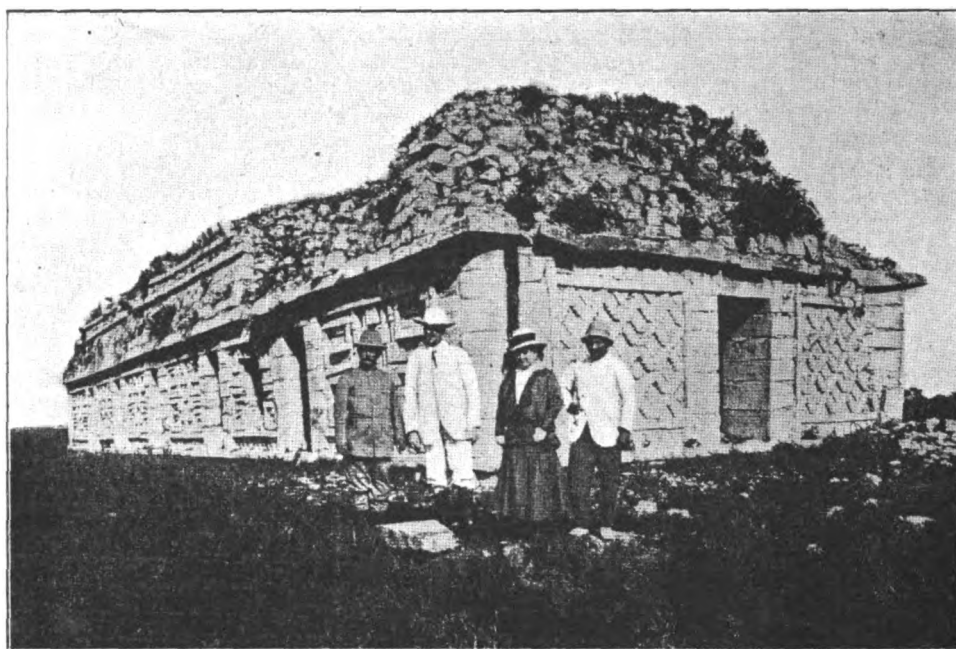
What is most wonderful of all is how they were able to cut those huge blocks of stone and then carve them so beautifully without metal hammers or chisels. There is no iron or other metal in the country and so all they had to work with was flint. How they raised the blocks into place none can explain. That remains as much of a mystery as the pyramids in Egypt. This is used as an argument to prove that the same race of people did them both.

No attempt to preserve them at all was made. In fact, farmers carted away tons of beautifully carved stones to build walls, and there was none to say them nay. It was a good deal easier to pull down a temple and take blocks away already cut than to quarry new ones.

At Chichen Itza there is a temple like a huge round tower that is very curious. In it are four sets of circular stone stairways, one within another. The object is incomprehensible and the method of erection a puzzle to builders of to-day.

For that matter these ruins have several feats in mason work that are beyond our twentieth-century architects, such as arches without keystones, leaning walls, round corners, hanging terraces, and so on. The walls are all enormously thick and the rooms rather small, even in the houses of the governors or kings, or whatever they were called. Most of these rooms are now inhabited by bats and are not at all pleasant places. There are no flat ceilings to be found. All are finished with pointed arches.

In only a few places can any idea be had of what the interior decorations were like, as the coating over the rough stones of the walls has generally gone. Where



THE NUNS' HOUSE AT CHICHEN ITZA.

As there is no gold, silver, or precious stones to be found in all Yucatan, it goes without saying that the ancient Mayas had no wealth of that description. Unlike the ancient Peruvians they had no vast stores of hidden gold. Still the treasure hunters will not believe it. These ruins look exactly as though in some sealed-up chambers fortunes would be found. And so the treasure seekers have time and again invaded them and dug away and done a good deal of ruthless despoliation, to find nothing and have their labour for their pains. As soon as the Constitutionalists came into power a stop was put to that sort of vandalism. There are now Indian watchers guarding all the important ruins, and anyone caught prospecting in them is dealt with severely.

There are many more ruins standing at Chichen Itza than at Uxmal, but in both cities all the smaller structures and private houses have disappeared. The ages have worn them away or earthquakes shaken them down and the jungle has covered all. The natural accumulation of soil for centuries has also covered them many feet deep. The bases of the big buildings still in sight are, of course, below the present surface. Not much has been done in the way of excavating, for the Government is only just turning its attention to these wonderful relics of the past. In the old Diaz days they were almost ignored.

If still remains it can be seen that frescoing and mural painting were the rule. From these paintings, as well as from the carvings, has been obtained the only knowledge we have of the costumes and customs of the people of that day.

The builder, or designer, of each temple or palace put his mark on it in an odd way. It is the imprint of his hand in red dye upon a stone near the main entrance. This hand mark is always found under the final coat of plaster which originally covered the stones. As the plaster has now scaled off the hand prints can be seen. A remarkable thing shown by these old hand prints is that in each case the second and third fingers were of the same length.

Another form of sacrifice for which these ancients had a great predilection was the drowning of young girls. This was considered a great honour, and for a month before the event the selected victim was treated to every luxury and indulgence. Then she was taken to the sacrificial cenote, an enormous natural well in the limestone, 200 feet in diameter and 100 feet deep. She was pitched into this and allowed to drown, while the populace crowded to the edges and enjoyed themselves.

Around the stone platform from which the priests used to hurl the girls several big trees are now growing, loaded with magnificent orchids.

### THE SURVEYORS' INSTITUTION.

UNDER Section 2 (1) (b) of the Military Service Act, 1916, the Legislature recognised that exemption from military service might be justified on the ground that serious hardship would ensue if a man were called up for army service, owing to his exceptional financial or business obligations or domestic position.

In the view of the Council this provision would apply specially to the cases of men who are the sole, or sole remaining, heads of businesses on which they or their families are dependent for a livelihood, and who are unable to find a substitute to carry on their business, which would therefore be ruined if they went. The Council has carefully considered how best they might assist members placed in that difficulty and they have decided:

1. To set up Boards, both for the London area and for provincial districts, to investigate applications for exemption from members, and to advise the tribunals thereon. Members called up before tribunals are therefore advised to ask that their cases may in the first instance be referred to the Board representing their district; and

2. To set up a Court to deal generally with questions connected with the maintenance of the businesses of members called to the colours, and to adjudicate upon differences which may arise between them and other surveyors who may be acting for them.

The Institution has been asked to make it known that surveyors in all branches of the profession, who have now been called up for military service, will be accepted for the 110th Training Reserve Battalion (late 22nd King's Royal Rifle Corps), from which a number of surveyors have already obtained commissions, and in which they will have the opportunity of being trained with other men of the professional classes.

The Battalion is stationed on Wimbledon Common. Applications should be made to the British Empire League, Norfolk House, Laurence Pountney Hill, E.C., letters being marked "Recruiting."

### SANITATION WITH THE B.E.F. IN FRANCE.

By LCE.-CORPL. N. W. HOSKINS, Serving with a Sanitary Section R.A.M.C.

*Sanitary Organisation.*—There is no doubt that, before this war, the question of sanitary arrangements for an army in the field had been very much neglected. It is a fact not generally known that, in former campaigns, the number of men who have died from disease have greatly exceeded the number who have died as a result of the enemy's wounds. During a period of the South African War we lost in deaths from wounds 6,965 N.C.O.s and men, whereas 13,590 died from disease and 72,551 were invalided back to England. For every soldier admitted to hospital for wounds, 17 were admitted for disease. In times of peace, when the sanitary arrangements for barracks and camps are in the hands of contractors, there is little need for more than the regimental sanitary fatigue men, and it was not until we had sent an Expeditionary Force to France and conditions became abnormal that the true value of qualified sanitary men became apparent.

Before going into the details of sanitary work carried out in France, it will not be out of place if I describe the sanitary organisation of an army in the field.

The Field Service Regulations state that "the commander of every unit or formation is responsible for the sanitary condition of the quarters or localities occupied by his command and for taking all measures necessary for the preservation of the health of those men under him. He is also responsible for seeing that each officer and soldier observes all sanitary orders and for the good order and cleanliness of that portion of a quarter or locality under his charge, irrespective of the period for which it may be occupied."

In practice it is the Medical Officer of the unit who is in charge of the sanitary arrangements and is responsible to the Commanding Officer.

At the head of the Medical Staff of a Division is the Assistant Director of Medical Services (A.D.M.S.). There is a Deputy Assistant Director of Medical Services (D.A.D.M.S.), Divisional Sanitary Officer and Sanitary Section consisting of 25 N.C.O.s and men. It is this section that carries out the supervisory and skilled sanitary work for the Division. These sections consist of specially enlisted men with sanitary qualifications and experience. Attached to these sections are divisional fatigue squads of men who, owing to some physical defect, are unfit for work in the trenches.

Each Battalion in the Division has a Medical Officer (M.O.) who has under him for sanitary duties one N.C.O. and eight men, and for water duties one N.C.O. and four men.

At this point I might mention that the methods of sanitation given in this paper are those recommended and carried out by a Divisional Sanitary Section (O.C. Captain F. S. Carson, M.B., D.P.H. Oxon. R.A.M.C.T.)

*Billets.*—The billets occupied by the troops in France consist of schools, factories, and private houses in town areas, and barns, farm buildings and huts in the country districts. During the hot weather the men sleep in bivouacs, the billets being reserved for wet weather only. These billets are frequently inspected by men of the Divisional Sanitary Section to see that they are being kept in a clean condition and that proper sanitary arrangements are in use.

Most of the farm buildings are built on much the same design and are interesting in so far as they are built on very insanitary lines.

The farmhouse, barns, pig sties and outhouses are arranged to form a closed square, in the centre of which is a large midden. This midden is supposed to be watertight and is full of manure, straw and foul water. All civilian slop and sullage water is run into this and the whole thing is emptied once a year and ploughed into the land.

The privy, which consists of a wooden box seat over a brick pit is situated in one corner of the square and is emptied periodically, the contents being spread over the garden land adjoining the house. The pump from a shallow well is within a few feet of midden and privy.

Strict attention has to be paid to these billets. Troops are forbidden to use the civilian privies and water is drawn only from approved sources.

During the hot weather the middens present considerable difficulty as the fresh manure, &c., afford an excellent breeding place for flies. They are treated by one of the following methods:—

1. Emptied and contents spread on land and ploughed in, or, if the ploughing season is over, heaped into proper middens 200 yards from billet, treated with chloride of lime and sprayed with five per cent. cresol solution, three fluid ounces Liquor Cresoli Saponatus Fortis to one gallon of water.

2. Covered with one foot of earth and treated with chloride of lime and cresol solution.

3. Tidied up, covered with straw and treated with chloride of lime and cresol solution.

In all cases no fresh manure is placed in the pits after treatment.

Fresh manure from stables and horse lines is carted daily direct to farm land for ploughing in or built into proper middens as above and sprayed daily with a five per cent. cresol solution until about a week old.

*The Sanitary Area.*—As soon as possible after the arrival of troops at the billets, the preparation of latrines, &c., is proceeded with to prevent fouling of the site by casual resort.

The latrines, urinals and other sanitary arrangements are made at the rear of billets. They are not indiscriminately scattered on the site but are confined to a definite part of it which is called the "Sanitary Area."

\* A Paper read before the Institution of Sanitary Engineers, at Caxton Hall, Westminster, on December 6. Major A. J. Martin, M.Inst.C.E. (Past President), in the Chair.

When a unit vacates a set of billets these areas are marked for information of units following.

The site for the "Sanitary Area" is always carefully selected with reference to water supply, kitchens and prevailing winds, and it is made as far as is conveniently possible from billets. Disinfectants are used daily in this area to keep away flies.

*Flies.*—The fly question is one of the utmost importance, as it is owing in great part to these pests that intestinal diseases are spread. They breed best in fresh stable manure and have a great liking for human excreta on which they feed on every possible occasion. It is owing to the possibility of "carriers" that flies are so dangerous. After a meal of human excreta they may settle on the soldiers' food. They are able to transfer disease germs from one to the other by three methods. The germs may be entangled in the legs or wings. If the food on which the fly settles is solid, it will vomit sufficient liquid to dissolve the food. There is also a good chance of it depositing infected excreta on the food as it defecates every few minutes.

From this it will be seen that any material in which flies breed and all excremental matter, refuse, &c., must be dealt with and disposed of as soon as possible, and that arrangements be made to keep all food covered.

An improvised fly proof food safe is made from a wooden ration box. Square openings are cut in the sides over which are fixed pieces of perforated tin from biscuit tins.

*Disposal of Excreta.*—The method for disposing of the excreta and the type of latrine used has varied considerably. The matter has received a great deal of attention, and there has been a steady improvement on the old methods.

As the system chosen depends mainly upon the amount of space available in the vicinity of billets, I will first describe the methods adopted when units are in country districts.

*Country Districts.*—During the winter of 1914-1915 and wet weather following, the long and deep trench latrine was in general use. This consists of a trench about 6 feet long, 2 feet wide, and 4 to 14 feet deep, over which is fixed a rough pole seat. The excreta are covered once or twice a day with pulverised earth or chloride of lime.

As warmer weather approached, these deep trenches caused considerable nuisance owing to the uncovered excreta attracting flies, and for this reason the short and shallow trench latrine was introduced; with this form of latrine the excreta are covered with pulverised earth immediately after deposition, and they are rapidly broken down to a harmless mould by the action of the nitrifying bacteria, which are contained only in the upper layers of the soil. The latrine consists of a number of trenches 3 feet long, 1 foot wide, and 1 foot 6 inches to 2 feet deep. These are dug 2 feet 6 inches apart, to allow of a second set being dug in between the first set. The excavated earth is finally pulverised and placed at the back of the trenches together with the turf. When filled within 6 inches of the surface, the trenches are filled in and the turf replaced. These are used at the rate of 5 per cent., and last from 2 to 3 days.

From a theoretical sanitary point of view this is an ideal method of disposing of human excreta, but it was soon found to have two great disadvantages. It is not economical as regards ground space—after a short time it was difficult in many places to find unfouled ground near the billets for latrines.

Another disadvantage is, that it is difficult to get the men to cover their excreta with earth, although a scoop is provided at the latrine for this purpose, and every other means is used to make them.

To obviate these disadvantages, numerous experiments were carried out by the Sanitary Section, and new systems were brought into force. For country districts, an improved form of trench latrine was introduced. It consists of a deep trench, wider at the bottom than the top, over which are fixed, at intervals,

wooden box seats with covered openings to exclude flies. The covers are made self-closing. The intervening spaces between the boxes are covered with pieces of wood. On the front, inside of the box, a piece of tin is fixed to guide the unavoidable urine into the trench.

During the winter months these are kept under cover as much as possible, and light movable sheds are made by the regimental pioneers.

The seats are washed with cresol solution, and chloride of lime is sprinkled in the trench daily, and when filled within a foot of the surface, the trench is filled up with earth.

Another system which was introduced was to burn the excreta—this is not, however, used in country districts where there is a space for the deep trenches.

*Disposal of Excreta in Towns, &c.*—In town areas and villages the bucket system of latrines is used, the faeces being collected daily and buried in deep pits or burnt with the refuse in specially constructed incinerators. If the area is large the faeces are collected in covered barrels, but generally in the villages it is arranged for the incinerators to be built conveniently close to latrine sites.

The latrines are arranged to serve as many billets as possible and take several different forms. The open bucket latrine consisting of a row of buckets or biscuit tins and a pole seat is the simplest form and is used only as a temporary arrangement until other materials are obtainable. Strainers made from perforated biscuit tins are sometimes used in buckets to keep the excreta separate from unavoidable urine and also to prevent fouling of the buckets. A better form of latrine has a biscuit tin container covered with a wooden box seat and flyproof cover.

It is essential during the winter months to have these latrines constructed under cover. They are placed under sheds or in outbuildings or light sheds made by the regimental pioneers or Royal Engineers.

If it is intended to bury the excreta, cresol solution is placed in the buckets after emptying, but if they are to be burned, straw or sawdust is used.

Urinal buckets or tins are placed near the latrines, the urine being drained into covered pits.

*Urinals.*—If sufficient ground is found in the vicinity of billets, soakage urinals are constructed. These consist of pits about 4 feet deep and partly filled with burnt tins, bricks, &c. The earth is then thrown back lightly, leaving a groove at the side to allow the urine to drain to the bottom of the pit. The men urinate into biscuit tins fixed at a convenient height, perforated at the bottom to allow the urine to discharge into the pit. Night urine buckets are placed outside each billet at dusk and emptied each morning into the urine pits.

*Sanitation in the Trenches.*—In trench areas there are special difficulties to contend with as regards latrines and urinals. The space is very limited and there is much greater risk of nuisance.

I believe that, in the early stages of trench warfare, it was the custom of our Tommies to deposit their excreta in the tins which had contained their ration of jam or bully beef and throw the whole lot over the parapet into the German lines. This worked very well until the enemy copied the idea and it was discontinued by a sort of mutual agreement.

It is necessary that trench latrines should be protected from the enemy's fire so that they may be used at all times with safety.

Buckets or biscuit tins are used, cresol being placed in the receptacles before use. The contents are emptied and buried behind the trenches at night.

Where practicable the deep trench latrine with flyproof covers and the covered soakage urinal is used.

Refuse from trenches is collected in sacks or tins and buried behind the lines.

*Aerial Sanitation.*—Some time ago I read in a technical journal some suggestions for the disposal of excreta in aircraft. I rather think that no arrangements are made, but if necessary I believe they do exactly what the author of the suggestions did—"let the matter drop."



**Refuse Disposal.**—The refuse consists of jam and meat tins, paper, straw, old clothing and waste food. All refuse is burned in an incinerator, and any remaining after incineration is buried in deep pits and covered with 2 feet of earth. It is more general now to dispense with the refuse pit as there is a great temptation to throw food, slops, and vegetable debris in them, thereby causing nuisance. It is often the practice to use the burnt tins and ash for making paths in muddy places. The incinerators are invariably built on the beehive principle and are made of brick or turf.

In town areas the civil and military authorities often combine to remove the refuse and the existing accumulations.

All refuse from billets is put into suitable movable receptacles for emptying into carts. A suitable dumping ground is found outside the town area. Brick incinerators are built, preferably on the improved beehive principle. The refuse is collected daily by a cart, and dumped near the incinerator where there is a man in constant attendance.

**Excreta Burning.**—Where the excreta are burnt with the refuse it is essential to use closed incinerators in order to obtain sufficient heat effectually to carbonise the excreta. A most satisfactory form for this purpose is the improved beehive incinerator. The ordinary beehive is built, but is carried up to a height of about 6 feet, the brickwork being oversailed to reduce the diameter to 18 inches, or 2 feet at the top. An opening is left at the height of the bars for clearing. The incinerator is fed from the top, the excreta being well mixed with the refuse. It is being used with great success for burning excreta with no other fuel than the ordinary refuse.

A small experimental incinerator was built on the lines of a back-feed town incinerator to deal with refuse and excreta. It has several advantages. The refuse is dumped and fed into the incinerator at ground level, whereas in other forms it has to be lifted from 4 to 6 feet. The burnt refuse is removed without interfering with the burning surface, and it is provided with a drying hearth which effectually dries the second load while the first is burning.

The fault found with this incinerator is that it is not as simple to construct as other forms.

A small square incinerator has been used with fair success for burning the excreta of small numbers of men. The excreta mixed with a little refuse is put into a perforated iron cressel drum which is placed in the centre of the incinerator. Fuel in the form of dry brushwood, refuse, &c., is burnt around it.

**Disposal of Sullage Water, &c.**—Sullage and greasy water from kitchens is run into specially constructed pits, after passing through an improvised grease trap. The pit, which is about 4 feet deep, is constructed on exactly the same lines as a soakage urinal. The grease trap is made from a biscuit tin perforated at the bottom, and half filled with straw. The straw collects the grease, tea leaves, &c., and is removed daily and burned in the incinerator.

Ablution water is dealt with in the same way, unless there is a stream close by into which it may be passed, after being run through a grease trap.

**Water Supply.**—An adequate supply of good water is absolutely essential for man and beast. This is often a difficult matter as there is no very elaborate apparatus with which to test and purify it.

When choosing a supply, common sense is the most important guide as to whether the water is suitable for the required purpose. The general surroundings, colour, smell, &c., give a rough idea as to the quality.

There is one very rough test which an Army officer informed me was used by our men in the South African War. Anything suspected of being water was put into a bucket. If it came out when the bucket was turned upside down it was water, if it did not it was mud. I do not think it has been necessary to resort to this test during the present campaign.

Water for drinking and cooking is obtained from

shallow, deep or artesian wells or springs. It is distributed by means of water carts having a capacity of 110 gallons, which are fitted with a sterilising apparatus. No water is considered safe for drinking without treatment, and medical officers are instructed to see that none but purified water is issued to troops and that the water duty personnel know how to work the carts and keep them clean.

The chloride of lime method of purification is in general use, the old pattern candle filter carts being replaced by carts fitted with Colonel Horrock's steriliser. Alum and chloride of lime (bleaching powder) are used for purification, the alum acting as a precipitating agent.

The apparatus consists of a galvanised-iron cylinder inside which is a canvas filter supported by a wire cage, and at one end a container for the chemicals. A small pump raises the water from the source of supply and forces it through the chemicals, which are held in the container by means of wire gauze. It dissolves sufficient of the alum and chloride of lime to precipitate solids in suspension and purify the water. It then passes through the canvas filter consisting of three layers of finely-woven canvas and out by the delivery pipe. The first two gallons are run to waste by an auxiliary pipe.

This apparatus is capable of purifying 180 gallons of water per hour and is re-charged with chemicals for every 100 gallons. The water is exposed in the cart for from half to two hours after purification as the process gives a slight taste of chlorine to the water which, however, quickly disappears on exposure to the air.

If the water cart is not fitted with Colonel Horrock's apparatus, a simple test apparatus is used which indicates the amount of chloride of lime to use. This test is based on the presence of nitrates found in the water and assumes that their presence indicates organic pollution.

When it is impossible to supply water purified by this method, acid sulphate of soda tablets are issued to the men; one tablet is sufficient to sterilise the contents of a regulation army water-bottle.

In small and detached units it is often the practice to supply boiled water for filling the water-bottles.

For men in the trenches it is impossible to take the carts very close to the firing line, owing to the noise of the carts attracting the enemy's fire. Rum jars, petrol cans, or barrels are used to store the purified water. Great care has to be exercised to keep these vessels clean.

**Vermis.**—Every means is used to exterminate vermin from troops. Body lice being the chief offenders, frequent baths and change of underclothing, disinfection of clothes and blankets, frequent change of straw in billets, and free use of anti-vermin preparations such as N.C.I. powder, Vermijelli, &c., are the chief precautions.

**Baths.**—It is arranged for every man to have a bath at least once a week. At first tubs were used, these being installed in factories where waste steam was available for heating the water. The hot water was run to a vat and the tubs filled by means of pails. A second vat contained luke-warm water to enable the bather to take a plunge after washing. The tubs were scrubbed out with cresol solution every evening.

A spray apparatus is now used which folds up into a very small space and which can be fixed up or dismantled in about half an hour.

The accommodation required is generally not difficult to find, but in some cases wooden huts are built by the Royal Engineers. A stone or brick floored apartment about 12 feet by 8 feet is required for the sprays, rooms for dressing and undressing with seats and hooks for clothes, underclothing store and ironing room. As a good supply of water is necessary, the site is chosen near a stream, &c.

The spray apparatus consists of a small boiler connected by flow and return pipes to a cistern supported at a height of 11 feet above ground level by an iron tripod and having a capacity of 26 gallons. The flue from the boiler fire is taken through the cistern to utilise the waste heat. The level of water in the cistern is main-

tained by means of a small semi-rotary pump which raises the water from the source of supply and forces it through the supply hose. A float gauge indicates the level of water in the cistern. The supply pipe to sprays is taken from the top of the boiler and has a control valve, and when turned on, the hot water from the boiler is forced along the pipe to spray nozzles by the head of water in the cistern. A thermometer is fixed on top of the boiler to ensure the water being of even temperature. Included with the apparatus are wooden foot-rests to cover the floor under the sprays. The whole folds up into five small crates.

It takes about fifteen minutes to heat the water, and the average quantity used is about  $1\frac{1}{2}$  gallons per man.

One spray bath is capable of bathing from 600 to 800 men a day if their clothes are being ironed and about 1,000 men per day otherwise.

The bathing is arranged as follows:—The first batch of men enter the undressing room and hang their clothes on numbered pegs. They leave their soiled underclothing in an apartment or in boxes for that purpose and enter the bathroom, where they wash with soap under the hot water sprays. While they are washing their clothes are removed from the undressing room to the ironing room, where the seams of tunics and trousers are creased and ironed with hot irons. After ironing, the clothes are taken to the dressing room, and hung on pegs with numbers corresponding to those in the undressing room. On the way from the bathroom to the dressing room the men are issued with clean underclothing. In the meantime, the second batch is undressing.

*Infectious Diseases.*—All cases of infectious disease are reported to the divisional sanitary officer. Full details of the case are obtained and records kept, special attention being paid to the sources of infection, including carriers and its connection with other cases.

The billet last occupied by the patient is thoroughly disinfected. All straw is removed and the quarters sprayed with a solution of formaldehyde: 8 fluid ounces of formalin solution with a gallon of water. This solution is applied by means of Mackenzie Sprays, one gallon covering about 400 square feet. If practicable, the floors and walls are painted with disinfectants.

Blankets of "contacts" and patients' clothes, &c., are steam disinfected and in some cases the billet is put "out of bounds" to troops and the contacts isolated.

Infectious disease amongst civilians is also investigated, and dealt with on the above lines. A record of cases with addresses is kept and handed over from division to division to prevent men being billeted in these houses.

#### PAINTED DECORATION ON FURNITURE.

In the early months of the great war it was generally felt that amongst the classes of workers to be affected artists, in particular, would suffer most.

To Lady Kinloch of Gilmerton was given the idea of forming an industry for painted furniture, whereby talented artists might turn their abilities to good account by joining hands with the cabinet maker and designer of furniture, and thus it came about that in conjunction



The soiled underclothing is steam disinfected, taken to laundries, washed and re-issued. There are four bath-houses for the division, one for each brigade and one for divisional artillery.

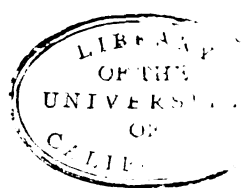
*Disinfection.*—A double Thresh disinfector mounted on a Foden steam lorry is attached for disinfecting clothing, &c., and all blankets are disinfected at regular intervals.

with Messrs. Tredegars, of Brook Street, this industry was established, and has arrested public attention and we are confident, admiration also. When the exhibition was opened last July at Lady Kinloch's Chelsea studio we were able to give an illustrated account of it.\*

Her Majesty the Queen, who has shown the greatest

\* See "The Architect," July 21, 1916.

NITUE





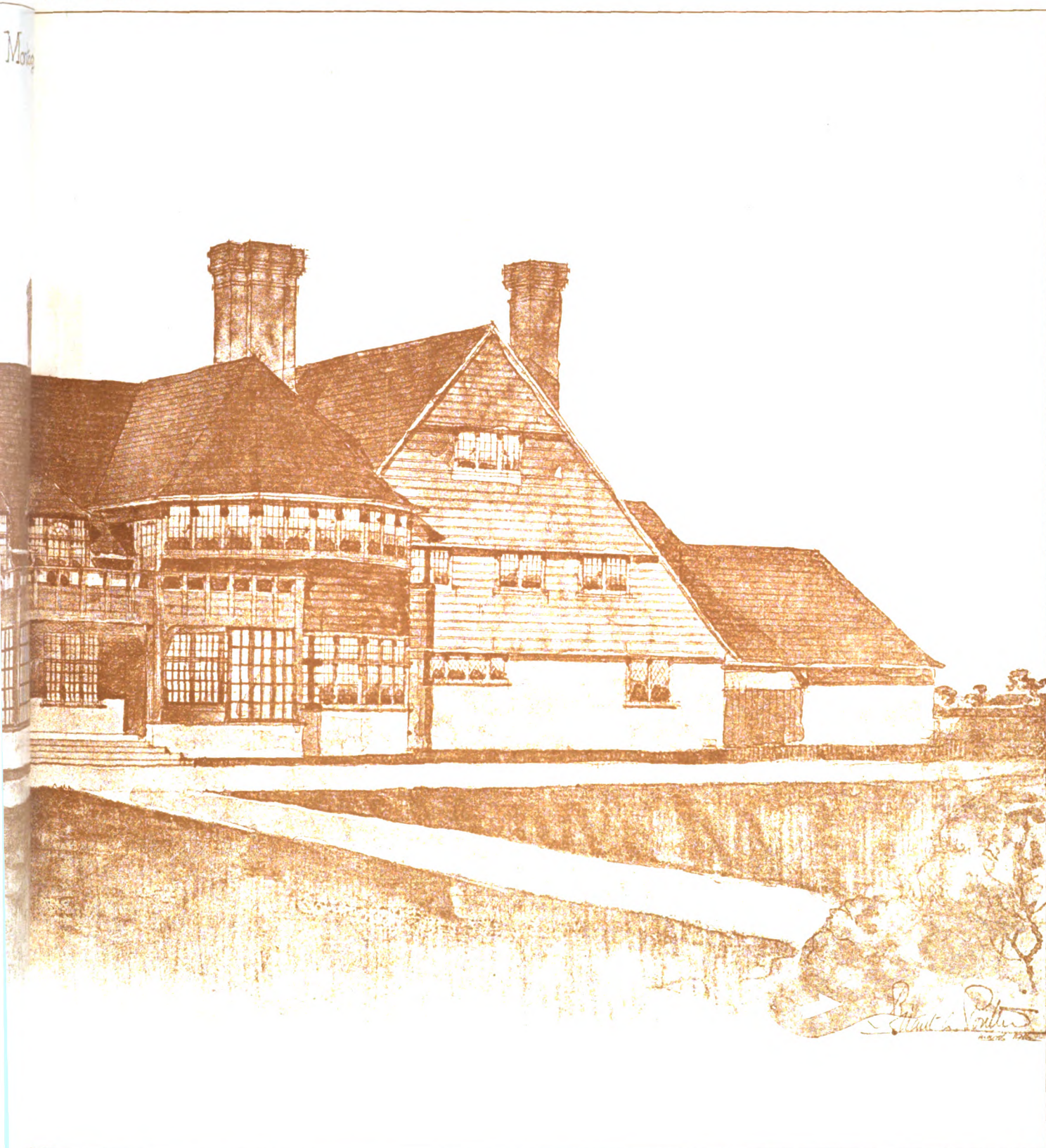
HOUSE at BEAULIEU for The Rt Hon Lord Montagu.



(Royal Academy Exhibition, 1916.)

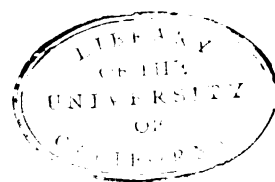


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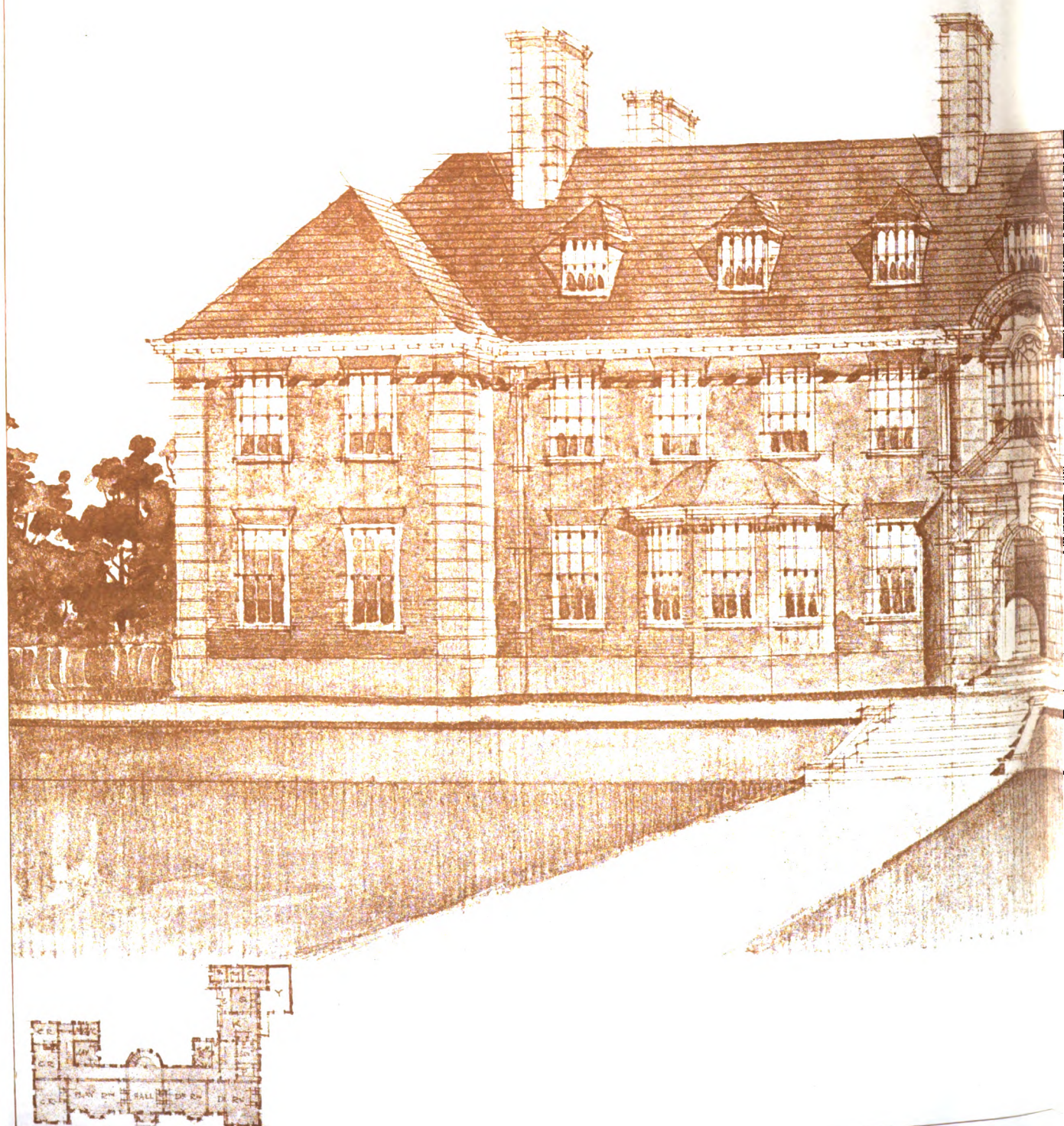
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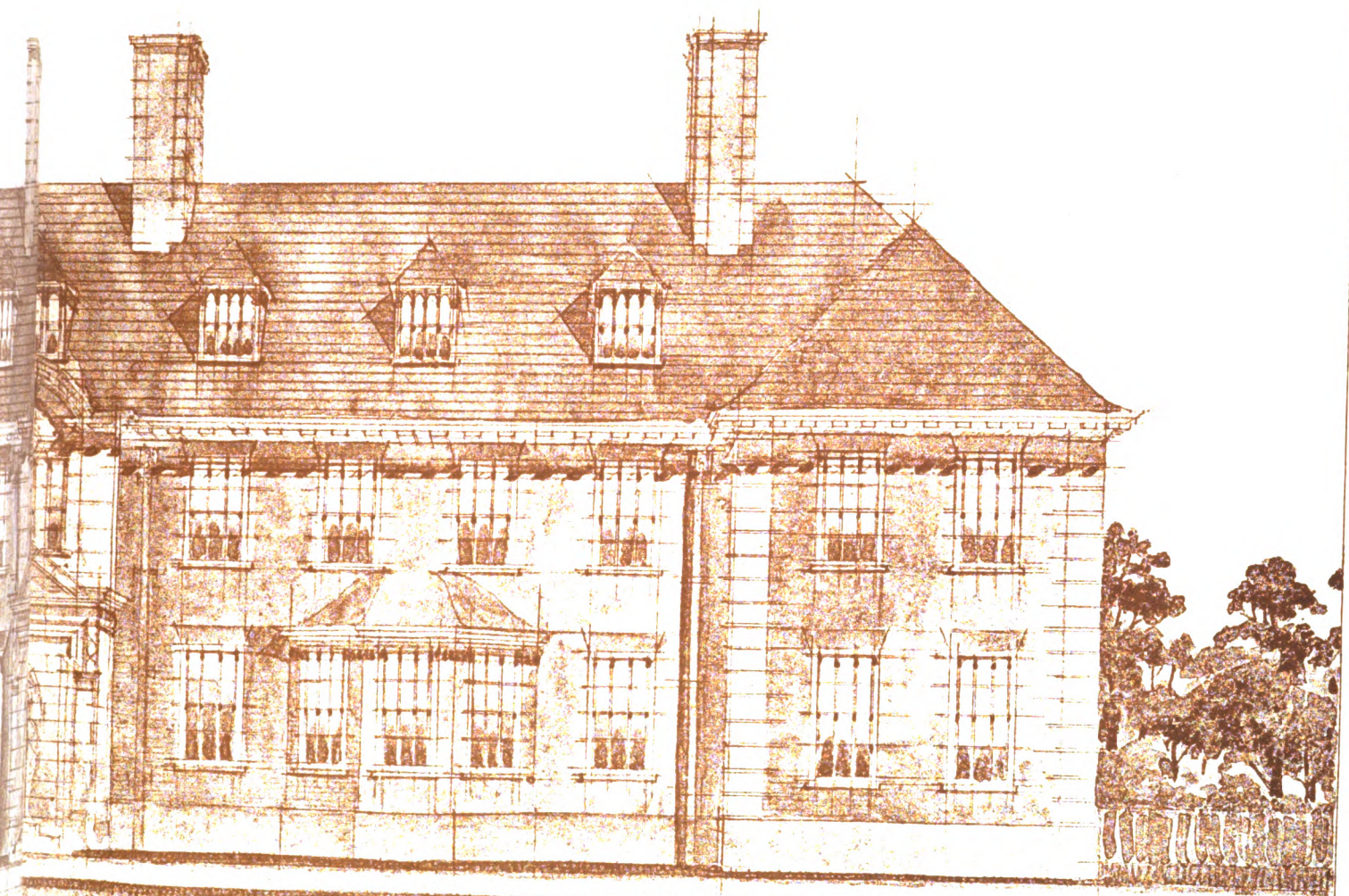
SCHOOL AT COODEN BEACH.



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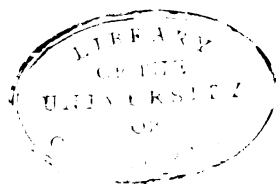
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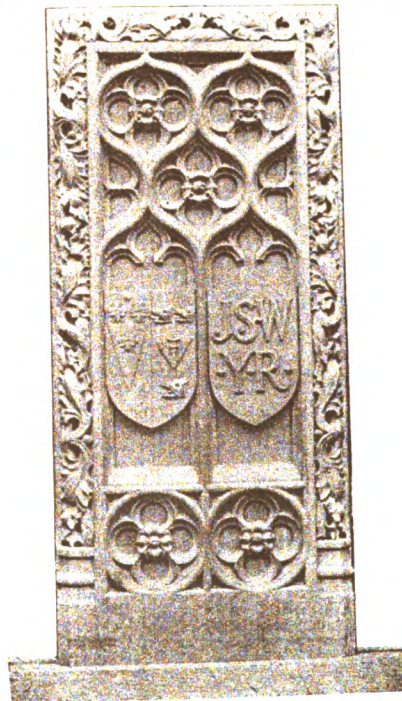
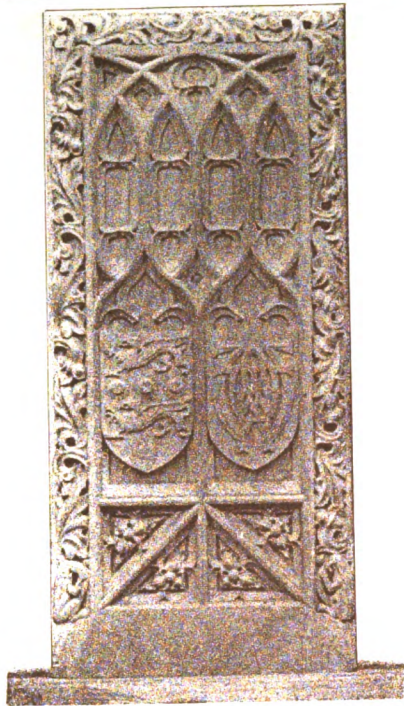
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29th 1916.













Oct. 29th 1916.







possible interest in the undertaking, has graciously allowed the latest achievement, a beautiful and dainty suite specially designed and decorated for a room at Windsor, to be on view for a few weeks at Messrs. Tredegars, prior to its being sent to the Castle.

Of this furniture the outstanding features are the beauty of the oyster-white body paint, and the colour, skill, and technical charm of the decorations.

Together with this suite are shown many other noteworthy examples of the painted furniture which have been executed since the industry was formed.

### ARCHITECTURE IN RELATION TO HEALTH AND WELFARE.

On Thursday, December 14, Mr. Paul Waterhouse delivered at the Surveyors' Institution the last of his course of three Chadwick public lectures on "Architecture in Relation to Health and Welfare," the special subject of this concluding address being "The London of the Future." The chair was taken by Sir Maurice Fitzmaurice, C.M.G. (Chadwick Trustee). The lecturer opened by explaining that he was no advocate of change for the sake of change. His heart said "leave London alone"; but his head made answer "London will change whether we like it or not, and it is someone's duty—namely, our own duty—to see that the changes are not governed by the disorder of hazard, but by the skilful premeditation which makes for order, economy, beauty, and unity of purpose." Glancing first at the road problem—the urgency of which he had set forth in his previous lecture—Mr. Waterhouse dealt with one or two solutions of the best known difficulties. He next dealt with some aspects of the railway question, including specially the positions and number of the necessary termini, and followed this up by a brief survey of certain aspirations which have of recent years been expressed in regard to the inevitable amelioration of the district adjoining the Surrey shore.

Before concluding with a caution on what he called "the disgrace of bad design," Mr. Waterhouse made an urgent appeal in favour of some form of definite woodland and grass-land girdle round the strictly urban portion of the town. Acknowledging that he differed from some experts as to the radius which such a circle should take, he indicated by means of a specially prepared map how largely the way was already prepared for such a reform and how greatly it would, while providing a valuable position for a circuit road, substitute beauty for ugliness in certain districts.

For further particulars of Chadwick Public Lectures apply to the Secretary, Mrs. Aubrey Richardson, at the offices of the Trust, 40 (6th) Queen Anne's Mansions, Westminster.

### GLASGOW HOUSING PROBLEM.

A SPECIAL COMMITTEE of Glasgow Corporation have approved of a report drawn up by Bailie Drummond and Sir John Lindsay (Town Clerk) on the subject of housing accommodation in the city. The committee commend (Councillor Bruce Murray dissenting) that the Corporation adopt the report and remit to the committee to select a site or sites for the erection of dwelling-houses and to prepare plans of houses, the erection to be proceeded with as may be decided by the Corporation.

In the report figures are quoted to show the necessity for building. It is pointed out that in the period from 1912 to 1915 the number of new houses erected fell short of the number required by the increase in population by 12,377. During the same period a number of houses passed out of occupancy through being demolished, closed, or converted into business premises. In 1913 the number of unoccupied houses was 18,341. A return made at Whitsunday last by the City Assessor showed

that that number had been reduced to 4,205, and it is understood that the number is much smaller now. Of the 4,205 it is believed that a considerable number are more or less uninhabitable, and this may be said also of a number of houses that are occupied at present. These figures demonstrate that at the moment the supply of houses in good sanitary condition has practically been exhausted. For the year ended August 31 last the Dean of Guild granted linings for only 16 houses. It may be taken that the causes that have operated hitherto in restricting building operations will continue for some time to come. In all these circumstances the reporters state that the erection of new dwelling-houses is required; that their erection is not likely to be undertaken in the immediate future by private enterprise to such an extent as to meet the demand; and that the Corporation should, in the circumstances, take steps to provide suitable houses in supplement of those provided by other agencies.

The committee are advised that the Corporation have ample power to undertake a building scheme. With the consent of the Local Government Board they may borrow money under the Housing of the Working Classes Acts, 1890 to 1909, on the security of the public health general assessment, the maximum period for repayment in the case of money spent on land being 80 years, and on buildings 60 years. The method of repayment will fall to be dealt with by the Committee on General Finance, which controls the borrowings of the Corporation. The principal modes of repayment are—(1) By equal annual instalments of principal, together with interest on the sum remaining unpaid, viz., the instalment system; (2) by equal annual instalments of principal and interest combined, viz., terminable annuity system; (3) by setting apart and accumulating at compound interest a sinking fund, viz., sinking fund system. The Corporation have hitherto favoured the first method, but it is common knowledge that local authorities in England have adopted the other systems, as also most of the local authorities in Scotland which have recently built houses.

The amount paid by way of interest on a loan under the instalment system over 60 years is less than under the other two systems. In the case of the latter two, the amount to be provided yearly throughout the whole period to meet interest and repay capital is a fixed sum, while under the former the annual instalment of capital remains the same but the amount to be provided to meet interest decreases as the loan is paid off. As illustrating the difference, it may be stated that under the instalment system the sums involved in the repayment of a loan of £100 for 60 years, with interest at  $\frac{3}{4}$  per cent., works out at £206 15s. against a sum of £240 11s. 3d. by the annuity and sinking fund methods—a difference of £33 15s. 3d., which is accounted for by the longer use of the balance of the loan, as it is not paid off so quickly by the annuity system. On the other hand, the latter methods have the advantage of being less burdensome to begin with. The rent of houses built under the instalment system of repayment is generally fixed on the basis of the first year's charges, without taking into consideration that the incidence of the sinking fund makes the interest charges a constantly reducing figure to the extent, in the matter of 30 years, of about one-half of the original figure. The Local Government Board are prepared to sanction either the instalment or the sinking fund system.

The Corporation have considerable areas of ground throughout the city suitable for building. If it is decided to build, attention should first be directed to this ground, most of which has been lying undeveloped for years and yielding no return, instead of taking steps to acquire additional ground at the present time. From inquiries that have been made and offers that have been received, it would appear that proprietors of ground in many parts of the city would be prepared to take a less sum for their land than they were prepared to take a few years ago.

Although no reference was made in the report of the committee appointed by the Secretary for Scotland in October, 1915, to inquire into the rental of small





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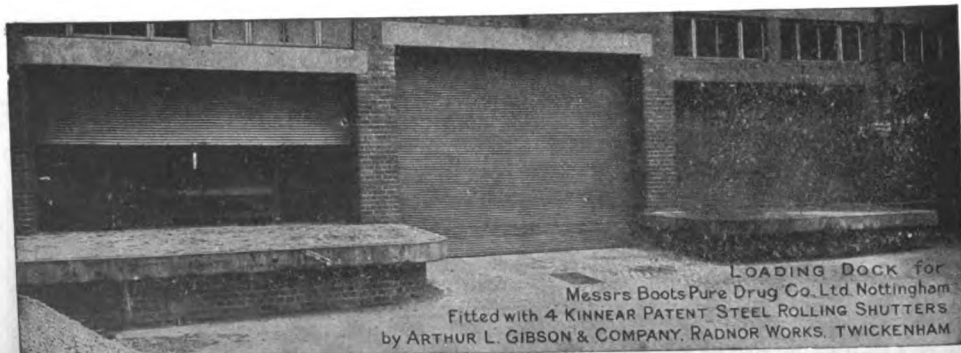
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dwelling-houses, to the effect of the high price of ground in discouraging building, the reporters are convinced that this has been a contributing cause. This particularly obtains in the case of land bought or leased for the purpose of erecting tenements, ground rents on tenement property being much in excess of those on villa property, although the site of the latter, from the point of view of residence, is superior to the former. The effect of the Town Planning section of the Housing, Town Planning, &c., Act, 1909, on the price of land has still to be ascertained, but it appears (the report states) that the Act has considerable potentialities if the town planning scheme is developed on broad lines and applied to extensive areas of ground. While under the Act any person whose property is injuriously affected is entitled to compensation, property shall not be deemed to be injuriously affected by reason of the making of any provisions inserted in a town planning scheme which, with a view to securing the amenity of the area included in the scheme, or any part thereof, prescribes the space about buildings or limits the number of buildings to be erected, or prescribes the height or character of buildings, and which the Local Government Board, having regard to the nature and situation of the land affected by the provisions, consider reasonable for the purpose. It is further provided, in the case of land acquired compulsorily for the erection of dwelling-houses, that no additional allowance shall be made by the arbiter on account of the purchase being compulsory.

It is impossible at this stage to deal at length with the character of the buildings. This will largely be determined by the condition of the site, the cost of the ground, and the character of the adjoining buildings. It is accordingly proposed to make no pronouncement, either with regard to tenements or cottages, until a particular site is under consideration. Whether buildings of the tenement or the cottage type are adopted, it will be necessary, in view of the high costs likely to prevail for some time to come, to aim at simplicity of design and economy in construction. This raises the question of relaxation of the provisions of the Glasgow Buildings Regulations Act, 1900, and the by-laws made thereunder, a matter which is at present under the consideration of the Master of Works, the Medical Officer of Health, and the Sanitary Inspector on a remit from the Executive Committee on Housing. The Corporation, however, can amend the by-laws at any time if they think fit.

The report concludes:—If rents are fixed on the basis of building costs any estimate that may be made at the present time is not likely to be of much value, as building costs are so uncertain at the moment. As illustrating the difference in the rent according to the instalment and sinking fund system of repayment, based on first year's charges, to meet interest and repay capital it may be stated that the amount that would be required for those charges apart from the amount required for repairs, management, rates, taxes, and assessments in the case of a cottage costing £300, with interest at 4 per cent., and repayment in sixty years, would be £17 by the instalment method, and £13 5s. 2d. by the annuity system. In the case of a tenement costing £1,800 these charges would be £102 and £79 11s. 2d. respectively. It is also to be kept in view that if the actual rent fixed is higher under the one system than under the other the rates and taxes will also be higher.

## BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

### A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

#### ENGLAND.

##### BERKSHIRE.

*Windsor*.—The "Castle" Hotel: alterations for the Home Counties Bible House Trust, Ltd.

##### BUCKINGHAMSHIRE.

*Aylesbury*.—Stores, &c., for Mr. Parnes Putnam.

##### DERBYSHIRE.

*Newhall*.—The "Star" Inn, Main Street: additions.

##### DURHAM.

*South Shields*.—Club House, Victoria Road: extension for the Working Men's Club and Institute.

The "Royal" Hotel, Mile End Road: alterations for Mr. F. M. Laing.

The "Old Grey Horse" public-house: conversion into offices for Mr. C. W. Taylor.

Nos. 23-25 Robertson Street: alterations for Mr. G. Saunderson.

No. 5 Saville Street: alterations for Mr. H. T. B. Saunderson.

##### HAMPSHIRE.

*Bournemouth*.—Nos. 28-30 Grand Avenue: additions and alterations for Miss Willans.

"West Moors," Richmond Park Avenue: alterations for Mr. H. Inglis.

House, Pine Avenue, for Messrs. Lawrence.

"Ravenscliff," Grove Road: additions and alterations for Mr. L. Binns.

House, Methuen Road. Messrs. George & Harding, builders, Lansdowne Road.

*Farnborough*.—St. Mary's High School: additions and alterations.

##### HERTFORDSHIRE.

*Letchworth*.—Foundry: extensions for Kryn & Laby Co.

*St. Albans*.—The "Sphere" Works, Campfield Road: additions.

##### LANCASHIRE.

*Pilling*.—House, Smallwood Hey, for Mr. E. Curwen.

##### NORTHAMPTONSHIRE.

*Peterborough*.—Proposed Village Hall, Peakirk, for Mr. Faithfull.

##### SOMERSET.

*Yeovil*.—Engine House, Dampier Street, for Messrs. Petters, Ltd.

Motor garage, Western Terrace, for Mr. W. D. Stirling.

##### SUSSEX.

*Worthing*.—No. 5 Station Parade: additions and alterations for Messrs. Barclay & Co.

West Town Lodge, Liverpool Road: addition.

Laundry, South Farm Road: additions and alterations for the Sunnysouth Aseptic Laundry Co., Ltd.

##### WARWICKSHIRE.

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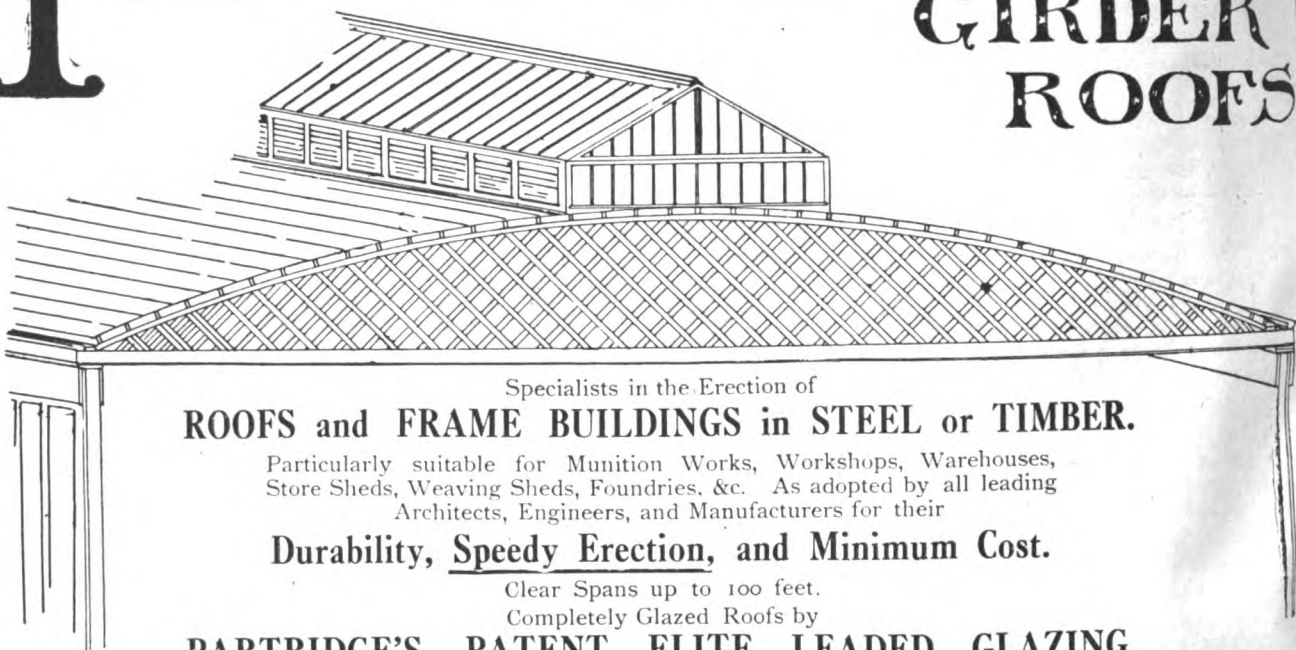
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